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Taking a stand for dairy calves, in terms of animal welfare and environmental impacts, as part of a LESS and BETTER approach

This is a working document.

It is a literature review, informed by meetings. It brings together and comments on data on the realities that determine the life and distress of calves from dairy cows, and on the possibilities for improving their lot, in the context of the cattle industry and environmental constraints.

It is also a plea to include respect for living beings and animal emotions in agricultural and food strategies, to abandon certain deleterious absurdities such as remuneration for calves rendered anaemic, and in particular to recognise that separating a calf from its mother is not a trivial matter. It's time to stop denying the maternal bond and come up with real solutions to the problem, while returning all categories of ruminants to pasture, managed with respect for biodiversity.

The living is more important than the carcass. The economic framework may evolve, but the laws of nature remain what they are.

Frans de Waal, a prestigious primatologist, refers to the sinister Romanian orphanages, described as slaughterhouses of the soul, and continues:

"There are many parallels with animals raised in isolation - just think of the dairy industry's appalling practice of separating calves from their mothers after birth. This leads to profound emotional disturbances in both cows and calves: they are less socially active and competent, and become stressed much more quickly than other animals that have been allowed to stay with their mothers. They can misjudge situations and quickly become unbalanced...".

Frans de Waal: The Last Embrace (2018), at the end of the 6th chapter

EFSA experts recommend:

"Prolonged cow-calf contact should increasingly be implemented due to the welfare benefits for calf and cow. In the future, calves should have contact with the dam during the whole pre-weaning period."

Welfare of calves on farm, 2023, Recommendations page 128

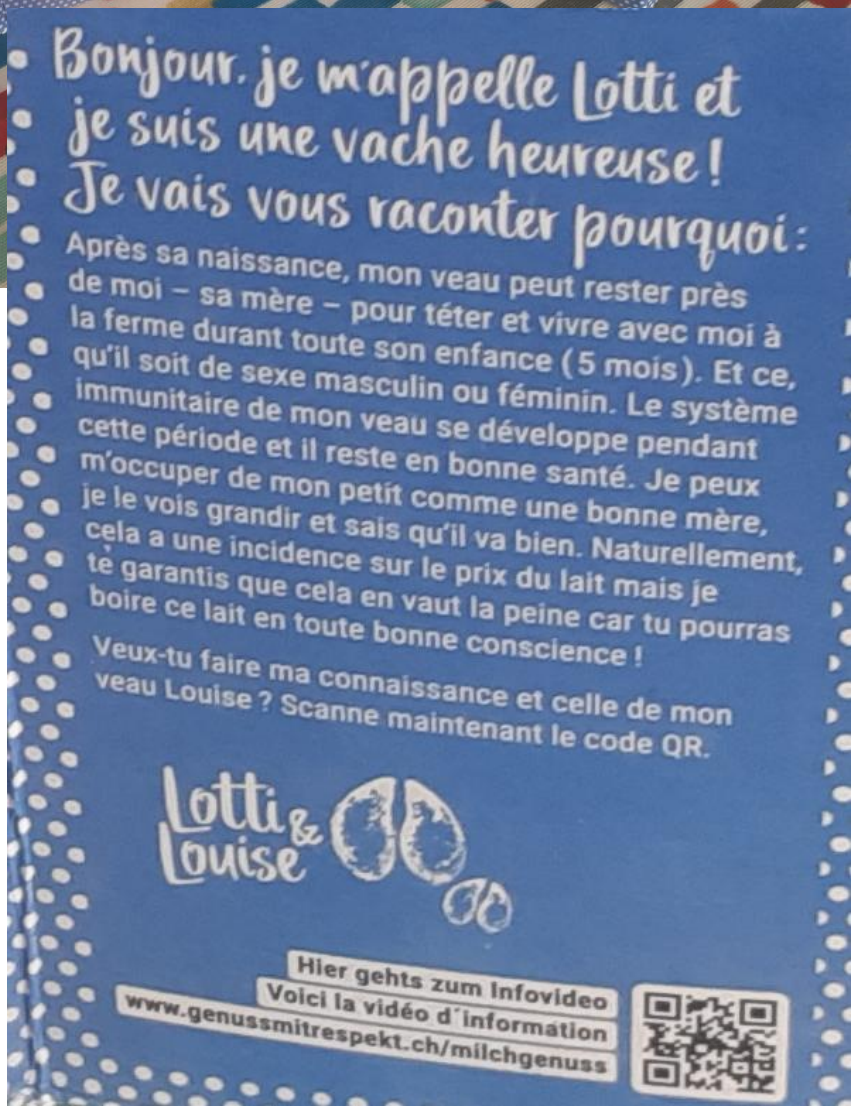
The European project (€2.7M) TransformDairyNet:

"TransformDairyNet aims to promote systems where calves stay with their mothers for months, rather than being separated shortly after birth, as is common in traditional dairy farming. Cow-calf contact (CCC) has the potential to improve animal welfare and health. … By 2027, TransformDairyNet aims to increase the adoption of CCC systems in European dairy farms, towards more ethical and sustainable dairy production."

https://transformdairynet.eu/about/

Table of contents

Milk bottle from the Swiss Muka initiative



Hello, my name is Lotti and I am a happy cow! Let me tell you why:

After birth, my calf can stay close to me – its mother – to suckle and live with me on the farm throughout its infancy (5 months). This is true whether it is male or female. My calf's immune system develops during this period and it remains in good health. I can take care of my little one like a good mother, I see it grow up and know that it is doing well. Naturally, this has an impact on the price of my milk, but I guarantee you that it is worth it because you can drink this milk with a clear conscience!

Would you like to meet me and my calf Louise? Scan the QR code now.

1. Description of the French cattle industry

France has a herd[1] **of around 7 million cows**, divided between **dairy cows (3.43 million)** and **suckler cows (3.56 million).** The fall in the number of dairy cows is explained by the increase in productivity per cow, while the fall in the number of suckler cows is due to the low income generated. 31% of cows are Prim'Holstein, a pure dairy breed, representing 2.2 million cows, 18% are Charolais and 15% Limousin. Mixed breeds reputed to have good qualities for both milk and beef include Montbéliarde (8%), Normande (4%), Abondance, Simmental, etc.

Dairy cows give birth to a calf (almost) every year to start the lactation period. Of the **3.3 million dairy calves born each year**, **half are females**, i.e. around 1.65 million. **As the renewal rate for dairy cows is around 34%**, this means that around 1.16 million females per year find a place in the dairy herd, and 490,000 female dairy calves are slaughtered for meat, either as veal calves, like the majority of male calves, or as heifers. **Cull dairy cows** provide a large proportion of the so-called beef. On a dairy farm, almost half the animals are heifers, with an average age at first calving of 32 months.

The **dairy veal calf** sector**,** integrated by feed producers, involves around 60% of males and 10% of females in specialised fattening units with closed buildings on slatted floors (concrete or wood), more rarely on bedding (mostly mixed-breed calves, which are better valued).

A quarter of male dairy calves produce ***Jeunes Bovins*** (JB, young bull) slaughtered between 12 and 24 months, fattened in very intensive confinement. Only 8% are raised as **steers (castrated males)** and fattened for longer, on pasture and preserved grass.

Exports of young dairy calves are rising sharply (337,000 by 2020), 93% of them to Spain, which has become a crucial market for the sector. Once fattened, a significant proportion of these animals are exported live to third countries (without animal protection).

The **direct sale of veal from dairy farms** means that better welfare can be achieved.

Suckler cows have replaced milk production in grassland areas (Massif Central). Incomes were very low. But in 2025, strong demand is pushing up prices. **Meat-breed calves** are generally suckled and graze with their mothers until they are weaned, usually between 5 and 10 months. **Over 1 million of these**, 65% of which are males (***broutards***), **are exported** for intensive fattening, the vast majority to Italy. Others are fattened just as intensively and in confinement in France, such as ***Jeunes Bovins*** **(young bulls 12 – 24 months)**. Steer cattle (castrated males) are in small numbers; they are fattened more slowly and for long periods on grass. Calves so-called 'under the mother' (sous la mère) will be dealt with below.

The industry wants to **relocate the fattening** of grazers. By 2025 there will be a shortage of animals. It would therefore make sense to fatten more dairy animals for red meat and on pasture.

The slaughter of large cattle in 2022 (all racial types combined) is divided between 48% cows, 19% heifers, 4% steers and 30% young cattle and bulls. Live exports of finished cattle totalled 33,000 head, including 22,000 bulls.[2] The trade balance shows a surplus of €0.6 billion in value (grazers!), but 26% of consumption is imported, and 18% of production is exported. Imported meat goes mainly to the catering trade.

[1] Devenir des jeunes ruminants laitiers : comment concilier élevage et attentes sociétales *(The future of young dairy ruminants: how to reconcile breeding and societal expectations)* INRAE Prod. Anim, 2023, 36 (1), 7491 Dominique POMIÈS1, Caroline CONSTANCIS2, Julien JURQUET3, Isabelle VEISSIER1, Hugues CAILLAT4, Gilles LAGRIFFOUL5, Marie DROUET6, Clément FOSSAERT7, Yannick LE COZLER8

[2] Key figures from GEB Bovins 2023 Production Lait et Viande

2. General concepts of animal welfare

Animal welfare has become a vast subject of scientific research, with an enormous amount of data. The French **CNR BEA (National Reference Centre for Animal Welfare)** regularly publishes Newsletters (all downloadable) with summaries in French and English of scientific publications and current events, and more and more of its own expert reports in response to questions.

Following a European Citizens' Initiative in 2020, which collected 1.4 million signatures **calling for *"end the cage age"***, and as part of the **Farm to Fork Strategy**, the European Commission undertook to review all legislation on the protection of farm animals and to publish its proposals by the end of 2023. The European Food Safety Authority (**EFSA**) has drawn up **reports and recommendations** for all species and topics. But the deadline for legislative proposals has been pushed back to 2026. The proposal on animal transport has been published (2023); the European Parliament has given a distressing demonstration[3] of the merciless influence of the lobbies.

The **minimalist standards** in force maintain the 'high-performance' industrial systems in place, improving them slightly on the most high-profile problems (e.g. immobilisation of sows or calves) and/or generating increased morbidity and therefore economic loss (e.g. calf anaemia). Farmers have mistaken these miserable standards for so-called "welfare". What's more, each minimum standard is riddled with derogations (permitting immobilisation, painful procedures without anaesthesia, etc.). There are specific minimum standards for calves, but not for cows and other large cattle. Recent EFSA reports show the considerable progress made by scientists. For example, it is no longer enough for animals to have just enough room to lie down all at the same time as they are crowded together.

Today the scientific consensus is that we must not only avoid suffering, but also allow for positive, pleasant emotions. More and more research is being carried out into the emotions and cognitive skills of animals[4] . Animal husbandry science (zootechnics) is interested in animal welfare insofar as well-being (often confused with health) improves productivity. This helps us to understand certain things better. But it would be much better to learn to seek welfare for welfare's sake and to find pleasure ourselves in seeing the animals happy. Here's what animal welfare involves:

- **Satisfying the welfare needs of animals**; these are needs in terms of
  - **health**: hygiene, air quality, water quality, disease prevention, biosecurity, etc.
  - **physiology**: feed adapted to the species, harmonious growth, "movement is good for your health", climatic stimulation, quality rest, no harmful hyperproductivity, etc.
  - **behaviour**: expression of natural behaviours that are necessary or conducive to positive emotions (no need to let fights and squabbles break out!): foraging (grazing, suckling, etc.), adequate rest, social interaction, exploration, play, etc.
  - **emotion**: allowing and respecting family ties and friendships between animals, e.g. through stable groups and good human-animal relations, etc.
  - **cognition**: the environment must be sufficiently stimulating, diversified and spacious for the animal to explore and interact intelligently, learn to control its environment and find satisfaction and solutions to the challenges it faces,...
- **and provide active protection against physical suffering** (pain, discomfort, illness, etc.) **and psychological** suffering (frustration, fear, isolation, separation, chronic stress, etc.).

[3] The European Institute for Animal Law & Policy: Brussels at a Standstill: The Fight with Animal Transport Rules
[4] Review of assessment methods by Heather W Neave: Measuring minds: Understanding the mental states of dairy cattle in different management conditions. JDS Communications 2025; 6:479-483

3. Animal welfare, with a focus on dairy calves

3.1. Dairy cow welfare

Dairy farmers have always been interested **in the welfare of dairy cows**, since lactation is strongly affected by stress. There is therefore an economic interest in taking care of it. However, the replacement rate for dairy cows is 34% on average, at 5.8 years of age and after 3 lactations (and often much less) - in short, cows don't last very long. With a view to revising the regulations**, the European Commission has referred a number of specific issues to EFSA: lameness and mastitis, movement restrictions and lying problems, inability to perform comfort behaviours, and metabolic disorders.** EFSA is studying which risk factors in buildings and practices contribute to these welfare problems and how to assess them in animals. High risks of poor welfare are attributed to the following factors: more cows than cubicles; limited total stable space; inappropriate cubicle dimensions; high mortality; no access to pasture. Yet France is one of the European countries with the highest levels of grazing: 90% of dairy cows (the definition of grazing seems however very lax!) compared with 30.8% in Germany[5] and 24.7% in Denmark. - The cows' emotions have not been taken into account.

It is striking that **NOTHING in this report on cows relates to calving conditions or the cow-calf relationship** (the same goes for the Welfare Quality assessment protocol). You can see this immense omerta hanging over milk. Everything is done to ensure that cows and calves are treated in separate categories that never meet. We will break the omerta.

The Commission had the intelligence to ask for a *study on economic models to prevent **the transport of dairy cows at the end of their careers that are unfit for transport***[6] . Cows are culled because they are infertile or not productive enough, or because they are injured, lame or ill. Quite regularly, cows that are legally unfit for transport are taken to the abattoir anyway, causing considerable suffering. A veterinary surgeon who refuses to transport cows in this way may be frowned upon by his clients. The study concludes that reducing the transport of unfit cows requires the allocation of resources and the dissemination of good practice, and that a more systematic change, e.g. in the economic model under which the EU dairy sector operates, is more difficult to tackle, but is recognised as a key factor.

Reproduction in dairy cows is managed to produce milk with maximum feed efficiency and profitability. Three months after calving, the cows are inseminated again. Gestation lasts 9 months. Drying off is induced quite suddenly 8 weeks before the next calving. Traditionally, the interval between two calvings (calving interval) does not exceed 400 days. Every unproductive day weighs heavily on the production balance sheet. Today, however, **extending lactations** is an option that is being taken more and more seriously (see below).

Infertility is the leading cause of culling, followed by udder cells and infections and lameness, with a median age of 5,75 years (declining) and 3.2 lactations[7] . This clearly shows that something(s) in the system is not going too well.

Even if it is said that "the farmer loves his cows", the system does not allow for feeling, quite the contrary.

Genomics, for its part, always promises anything you want... e g to solve all the problems of health, productivity and GHG emissions, and to reconcile the resilience and efficiency[8] of cows.

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[5] EFSA Welfare of dairy cows p.27
[6] ICF, April 2022
[7] IDELE Webinar on longevity 29 November 2024
[8] https://www.gentore.eu/uploads/1/0/7/4/107437499/gentore_french_web_final_1.pdf

3.2. Dairy calves: birth, separation, housing, feeding

If the building is modern, **the calf** is **born in** a spacious, well-bedded pen where the cow is usually alone, sometimes in a group. But tethered calving is still common - yet another appalling ordeal for the cow.

Everyone knows that a **good intake of colostrum** in the first few hours of life is crucial to the calf's immune defence and survival. Either this is done naturally, through the first feedings, or the farmer milks the cow and makes the calf drink the colostrum. One recommended technique is to make the calf drink 4 litres in one go, even if this means probing and force-feeding the calf. As a general rule, dairy calves are taken from their mothers either immediately after birth or a few hours or a day later. In France, igloos and individual huts are widely used **for newborn calves on dairy farms**. Collective housing, including collective igloos, seems to be developing. A recent survey notes this diversity. [9]

Calves for sale are collected from the minimum legal age of 2 weeks (could be increased, depending on the EU law revision). They are transported to allotment centres and from there to **intensive veal calf fattening units** (sometimes Jeunes Bovins) in France or exported (most to Spain).

Separating the calf from its mother eliminates **the natural togetherness that is characterised by feeding, by caring and affectionate behaviour, and by social learning** about the things of life: food, life in a herd, the environment. **Naturally,** the cow gives birth at a distance from the herd and for the first few days hides her calf in the vegetation, where she comes to see it regularly. Mutual recognition develops through smell, voice and sight. Mother and calf become strongly attached to each other over the course of hours and days. After a few days, she takes the calf back to the herd, where it readily associates with other small calves; this is known as the herd's "kindergarten". Any time a calf is separated from its mother, they call one another, and if the calf is lost, the distress for both is profound. A calf reared with its mother is more self-confident, more socially competent, learns better and is less frightened than an isolated calf. Numerous scientific studies have addressed this issue (see EFSA bibliography).

There is little interest in the **impact of separation on the mother**. After birth, the cow licks her calf intensely. The suckling of the calf as the milk flows down is accompanied by a surge in oxytocin, the so-called 'love hormone' (to put it briefly) and there is every reason to believe that proximity and suckling trigger an emotion of happiness in the cow (as they do in most women who breastfeed or give birth), which is very logical, since evolution selects mechanisms, including emotions, that reinforce behaviour favourable to survival. Breeders defend themselves against criticism of separation by arguing that it is better to separate at 1 or 2 days, because the attachment bond has not yet formed and the cow will suffer little. It is obvious that a later separation generates intense mooing. In the wild, the calf remains hidden in the vegetation for the first few days, so it is logical that the cow does not call it to come to her. On the other hand, what seems logical for the first few days is that the cow looks for her calf - and this is what we can observe, but this behaviour is silent, depends on the configuration of the site (which biologically makes no sense because it has barriers) and leads nowhere because the calf has been taken away. Another argument against the critics is that Prim'Holsteins are supposed to be less maternal than other breeds, especially sucklers, which are selected for maternal behaviour and sometimes defend their calves violently. However, it seems risky to conclude from a generally very docile behaviour, as has been selected in dairy cows, that maternal emotions are weak. Emotion is one thing, and the temperament that determines the visible behavioural response is quite another. There is certainly great variability between individuals. Which brings us to the 3rd argument, which is that some cows don't look after their calves, and some

[9] https://idele.fr/detail-article/etat-des-lieux-du-logement-des-veaux-laitiers-avant-sevrage

primiparous cows are lost with what's happening to them. The first question to ask when a cow on a farm fails to look after her calf is that the conditions in which she finds herself and any human stresses and disturbances could play a role. Secondly, her own experience, particularly if she was raised by her mother, or if she has suffered isolation, could count for something. Also, the natural social behaviour of a herd is restricted in a confined space with only cubicles and a corridor. Not to mention the fact that a pathological condition or pain can disrupt behaviour.

It has to be recognised that there is also individual variability among women (which they themselves claim) and that some women may find it difficult to adapt after the upheaval of childbirth. There have been societies where infanticide was practised, essentially for lack of resources and to avoid endangering children who were already older. In France (and this is much less understandable!) the practice of placing children with nurses to breastfeed the babies, although deadly to children, was widespread, e.g. in Paris and Lyon[10] . But such failures and misfortunes in no way justify taking children away from their mothers - quite the contrary. Similarly, if some cows have problems with maternal behaviour (and we still need to understand the causes!), this in no way justifies taking calves away from all cows. And if those who take calves away from their mothers use such arguments to justify or excuse what they are doing, it's because they need to clear their consciences, and this need is also understandable. The easiest way to get a good night's sleep is to say "the cow doesn't care about her calf". She's still eating and "giving" milk, so everything's fine.

Calf housing is hopefully going to change as regulations are revised.

Veal calves (mostly replacement calves) remaining on dairy farms are usually housed in groups in straw-bedded pens, but it is the initial isolation phase, of variable duration, that is causing concern and should be abandoned. Housing for **heifers** varies greatly. On some farms it is comfortable, and the heifers often graze in fine weather. But there are also many cases where heifers, which unlike cows are not yet economically important, spend the year in rather filthy stables with slatted floors or on muddy bedding. There are many zero-grazing systems in Europe; these animals never see grassland because their whole life is spent between more or less uncomfortable cubicles, a more or less dirty corridor and a robot or milking parlour.

As for **veal calves**, only a minority (5%[11]) benefit from spacious, straw-covered pens. The **current directive** not only authorises full slatted floors (95% in France), but also allows housing in 'individual boxes' (or rather 'crates', called baby box) up to the age of 8 weeks. The calf just needs to be able to see and touch other calves. The width of this 8-week prison is at least equal to the height of the calf at the withers, measured in a standing position, and the length is at least equal to the length of the calf measured between the tip of the nose and the caudal surface of the tuber ischii (tip of the buttocks), multiplied by 1.1, so theoretically it should be able to turn around (which, according to EFSA, is not always the case in practice). After 8 weeks of age, they must be housed in groups (i.e. at least two of them, according to the interpretation of the regulations). The minimum surface area is therefore 1.5m² for a calf weighing less than 150kg, 1.7m² up to 220kg and 1.8m² above that. The average haemoglobin level must be at least 4.5mmol/l of blood, limiting anaemia while accepting it.

The **new EFSA report on the welfare of calves** (2023) outlines the terrible consequences for the welfare of calves in this largely predominant system, which is also the typical system for producing so-called 'white meat' calves, i.e. producing light-coloured meat by creating anaemia in the calf through a deliberately iron-deficient diet. The realities listed below therefore relate (except in the very small minority of large groups) essentially to typical housing on full slatted floors, with a

[10] https://journals.openedition.org/transtexts/497 La mise en nourrice, une pratique répandue en France au XIX[e] siècle Emmanuelle ROMANET (*Wet nurses, a widespread practice in France in the 19th century*)
Feeding, a widespread practice in France in the 19th century

[11] Repères techniques et économiques 2023-2024 des élevages de veaux de boucherie. INOSYS (*Technical and economic benchmarks for veal calf farms 2023-2024)*

minimum surface area, initially in individual cages known as baby-boxes, and then after the removal of a few barriers in regulatory (small) groups. The calves are bucket-fed twice a day (except in the case of large groups with automatic milk dispensers).

EFSA clearly specifies, for each element of the assessment, the "*negative emotional states*" induced:

- **Restriction of movement**: due to lack of space; at the end of a stay in a baby-box, the calf can no longer turn around; but also because the floor is slippery and uncomfortable to walk on.
- **Isolation stress**: the individual box is detrimental to the development of social behaviour, feeding behaviour and emotional states; it increases fears and induces cognitive deficits.
- **Inability to express play behaviour** due to lack of space, slippery floor, isolation, lack of enrichment. Motivation to play is strong, even if overall it takes up little time during the day. It's all about jumping and galloping. There are locomotor games, social games and games with objects.
- **Inability to express exploration and feeding behaviour (grazing)**: lack of space, unsuitable ground, lack of enrichment, lack of grazing, lack of hay.
- **Group stress:** occurs in group housing when there is competition for resources (e.g. in the case of large groups with insufficient milk feed dispensers) and above all due to frequent grouping; some farms change calves often from one group to another to have groups of homogeneous weight, but calves become attached to each other and any change is a major stress. EFSA recommends small groups for the first few weeks to minimise the risk of infection (lack of data for large groups of 30 to 40).
- **Inability to express suckling behaviour**: this leads to abnormal behaviour. The calves' usual feed is contrary to their physiology:
  - **in the number of meals**; the calf has 2 meals a day, whereas with the mother it feeds 5 to 9 times a day. Some zootechnicians accept a single meal a day to reduce labour time.
  - **the position of the head** when drinking from the bucket (as opposed to the position when suckling from the udder) leads to the risk of milk leaking into the rumen and into the lungs.
  - **inability to suck**: typically, milk is drunk from a bucket, with or without a teat. But suckling is a major need. The motivation to suckle lasts much longer than the (rapid) ingestion of the ration. Frustrated calves suck on the body parts of other calves (even drinking their urine), or on objects, which a calf that is with its mother never does. Various systems use teats to reduce the enormous frustration of this deprivation. But nothing beats the mother's teat.
  - **Drinking too quickly**: the calf drinks from the bucket for 8 minutes a day, whereas with his mother he sucks for 57.6 minutes (EFSA).
- **Prolonged hunger:** the quantity of milk is insufficient, often recommended at 10% of the weight/day, whereas 20% of the weight/day is initially required. And even worse with just one meal a day, or skipping a meal!
- **Inability to chew and ruminate**: calves are highly motivated to chew and ruminate, but the concentrates (with low iron content!) they receive are inappropriate in terms of form, composition and quantity (see next page). Long hay is best.
- **Gastroenteric disorders:** 1st cause of mortality for infections during the first few weeks. Other disorders are linked to non-physiological feeding (see next page).
- **Respiratory disorders:** 2nd cause of mortality; exacerbated by transport and mixing of calves from different origins and by the many stresses to which calves are subjected; systematic distribution of antibiotics in view of the risks, following mixing of calves and stresses.

As for transport, and in particular the long **transport of unweaned calves**, an audit report from 2023 in France[12] shows various factors that reduce the effectiveness of controls. There is no guarantee that practices comply with legislation... and it takes images published by NGOs to see the realities behind the administrative jargon. Unweaned calves are particularly vulnerable. Unfit for transport is also a recurring problem. [13] In any case, it's impossible to feed and water all the animals in a lorry. The fact that absurd commercial logic can impose these mass transports is in itself a symptom and proof of the moral bankruptcy of the European agri-food system and its governance.

Among the red lines that we must stop crossing are those concerning the treatment of dairy calves, and we must do so as soon as possible, in the short, medium and long term:

- **the objective of light-coloured veal, the isolation phase at the beginning of life, etc.**
- **transport of calves, especially 'long' (> 8 hours) transport, but also < 8 hours**
- **separation of cow and calf.**

3.3. But what is this 'white calf' nonsense?

The aim of veal farming is to produce light-coloured meat[14] in order to give the consumer the conviction that by buying veal he is buying something other than beef (which is red) and therefore that he is buying one or the other, and overall more. So it's **a marketing objective**. Colour has no effect on taste. **The light colour of the flesh is due to anaemia caused by a deliberately iron-deficient diet. This is why veal calves are not allowed to eat grass or hay, which are naturally rich in iron. Yet grass is precisely the calf's natural, healthy food, alongside it's mothers milk!**

At the root of this perverse marketing may lie certain traditional regional practices, such as keeping the calf tethered in the dark (darkness was supposed to make it whiter) with a muzzle[15] so that it cannot ingest anything other than the milk brought to it in a bucket, nor lick scrap metal to find the iron it lacks. In the Limousin tradition of veal calf rearing, the calf is separated from its mother, who goes out to pasture (she is not milked), but the calf is confined to the stable and is entitled to two feedings a day; after each feeding it is again confined to its pen. Depending on the case, to optimise the carcass, it may also be fed by an additional foster cow, or supplemented with eggs, sugar and milk products given by bottle. *" The more they are confined the whiter their meat and the higher their price per kilo, a luxury product"*.[16] According to the Corrèze Chamber of Agriculture, the meat of this veal *is "white to very light pink in colour, very fine-grained, remarkably juicy and melting".* Please remind that these are meat breeds, not dairy calves. One dairy version of the white-calf-narrative is that the calf's liquid diet comes from the fact that in the past butter, which

[12] Final report of an Audit of France carried out from 13 to 24 November 2023 in order to evaluate the Protection of Unweaned Calves during Long Journeys

[13] L Mounier et al: Animal welfare during transport : Update on the implementation of Council Regulation (EC) N°1/2005. Study commissioner by the European Parliament Research Service. 2025

[14] Carcass classification can be consulted at FranceAgriMer: https://www.franceagrimer.fr/content/download/12661/document/veau1.pdf

[15] This belief is reported by the 'Veau sous la mère' Commission of Inquiry, page 32: https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://extranet.inao.gouv.fr/fichier/CNIGPLRSTG-2010-406-STG-VeauEleveSousLaMere.pdf&ved=2ahUKEwiY1PO8-tgOAxUrUaQEHUHuMSEQFnoECBMQAQ&usg=AOvVaw1lFvVgXCsd7TbqvUx3ycUe

[16] This is how France3 Nouvelle Aquitaine put it in a report at the time of the Covid confinement. In Corrèze, in 2018, 22,000 calves were produced under the 'veal under the mother' specification. https://www.youtube.com/watch?v=WwVelXuGA0o

was in great demand, was made for sale, and so the lean part of the milk was used to fatten the calf.[17]

In fact the belief that veal must be 'white' (white like the milk it is supposed to drink...) has been carefully cultivated by hiding the truth from consumers. In fact, industrial veal calves are not fed on milk but on milk replacer, which contains a certain proportion of milk powder depending on the age group of the calves, but which is mainly made from cheaper products on the world market. To stand out from the crowd, a Label Rouge veal label has been created, based on the claim that the veal is fed on real milk (supplemented with a liquid or solid feed). These complex specifications do not apply to pure dairy-bred calves.

The objective of marketing through colour is supported and perpetuated by the payment for veal. Admittedly, with the calf protection directive limiting anaemia, there has been a certain shift from white to pink. But the perverse effect of quotation is still in force. A farmer who gives his calf as much hay as he wants and produces a healthy, non-anaemic, red calf is heavily penalised and loses income. A well-informed direct sales or organic customer base is needed to sell red, non-anaemic veal at a fair price.

Here is an example of the price of veal carcasses at Rungis on 22 October 2024[18] . The quality of the carcass decreases from category E to categories U, R, O, P. Within the same category it is the colour, and therefore the anaemia, that changes, and that changes the price. It works: the INOSYS breeding network[19] classifies 85% of[20] calves as white and light pink (anaemic).

Veal carcass quotation at Rungis on 22 October 2024
Calves from France and the EU respectively

	red	rosé	light pink	white
cat E France / EU			8,40 / --	10,60 / 7,40
cat U France / EU	4,20 / --	6,30 / --	7,30 / 6,40	8,30 / 7,10
cat R France / EU	4,00 / --	5,50 / 4,70	6,80 / 6,20	7,20 / - -
cat O France / EU	3,80 / --	4,40 / 4,20	6,10 / 5,20	

The average haemoglobin content of a non-anaemic calf between 1 and 30 weeks of age is between 5.64 and 7.11 mmol/l of blood, increasing with age. The standard states that the average value for a batch of calves should be at least 4.5 mmol/l, which is well below the physiological value. Some calves undergo three blood tests and painful injections of iron (if their levels are too low, which would be illegal). The effect of anaemia between 4.5 and 5.3 mmol/l is poorly understood, but cardiovascular and respiratory responses to exercise indicate a reduction in welfare (EFSA). The EFSA recommends developing non-invasive methods for measuring anaemia... Is EFSA afraid of strong opposition if it ever wanted to put an end to these perversities?

The deficient diet of light veal also implies a **restriction in fibre**. The law prescribes a compulsory minimum quantity, which is far from sufficient to ensure the calf's good health. A fibre-deficient calf ruminates 5.5 hours less per day than a calf that has access to fibre ad libitum. Yet chewing and ruminating are essential needs for calves. The EFSA recommends multiplying the minimum quantity of fibre by 5, in the form of hay. The diet of 'white' or standard calves (inadequate concentrates and fibre, too few and too bulky drinks) also generates a **large number of pyloric lesions** and **rumen abnormalities**.

[17] according to Christian Delporte, nutritionist, personal communication
[18] Quotation site: https://www.web-agri.fr/marches-agricoles/rungis/veau , surveyed on 15 November 2024
[19] Technical and economic benchmarks 2023-2024
[20] 106 representative farms with superior technical and economic performance

All these unnatural feeding schemes for veal calves, dictated on the one hand by industrial profits and on the other by totally outdated traditions, whether for dairy calves or labelled meat breeds, are all the more questionable given that science today questions *"the role of the microbiota in psycho-neuro-endocrine mechanisms, via the 'gut-brain' axis, which links the various aspects of well-being and health"*[21] . In calves, this microbiota is ruthlessly manipulated and abused.

It's not a question of being naïve and imagining that everything 'natural' is good for your health. Natural evolution has generated diseases and parasites, and manages populations through hunger. But it has also created the tools of immunity and the formidable engine of happiness and the terrible engine of pain and suffering. Man must stop playing the sorcerer's apprentice and redevelop the capacity for empathy that evolution has given him. And there's no denying it: a calf raised by its mother is healthier than a calf that is separated as usual. The same applies more widely: *"...improved well-being, based on the strengthening of social ties between fellow animals, reduces the risk of disease"*[22] . And facilitates cures. But this does not mean that hygiene and prophylaxis are unnecessary.

In conclusion, it is astonishing, incomprehensible and downright scandalous that such blatant and abusive nonsense as light-coloured calves can still be accepted, supported by livestock technicians and vets, promoted, produced and sold to consumers who know and understand nothing about the differences between breeds and sectors, the marketing of meat and milk and the logic behind the mistreatment of calves. Unnatural livestock farming continues, and the tragedy of the 'mad cows' has served no purpose.

There is no reason why the 'white calf' should be untouchable and why we should not, at last, be able to tell the truth, loud and clear. Payment according to, and in favour of, the light colour of the calf, as well as any penalisation of a normal, healthy red calf, must be abandoned and banned.

Abandoning payment by colour will remove the first barrier to progress towards farming conditions that are more respectful of the animal.

The second step towards truth is to recognise that separating a calf from its mother is not a harmless or trivial act, but a traditional yet inhumane one that has a serious impact on the emotional state of the animals. The solutions are much more complex than banning the 'white calf'. However, they do exist, and some people practice them. They need to be developed and made economically viable.

As part of a gradual, phased strategy to improve calf welfare conditions, keeping calves with their mothers must be the ultimate goal.

[21] Christian Ducrot et al: Améliorer conjointement la santé et le bien-être des animaux dans la transition des systèmes d'élevage vers la durabilité. INRAE Prod. Anim. 2024, 37(3), 8149 (*Jointly improving animal health and welfare in the transition of livestock systems towards sustainability)*

[22] Idem page 3

3.4 Fattening of cattle

In keeping with our plan for a holistic approach, we are now looking at what alternatives there might be to the conventional production of veal calves, the absurd cruelty of which we have just described. So we now want to find out more about conventional ways of fattening these small cattle until they are older, in order to produce so-called 'red' meat. We'll start by taking stock of the situation, and then draw conclusions.

3.4.1 What are the conditions for fattening cattle in Europe?

In 2025, at the request of the European Commission, **EFSA published a general description of fattening methods for cattle in Europe**. There are no specific European standards for cattle, but some Member States do have standards.

In Sweden, Finland, Denmark, the Czech Republic and Austria, permanent tethering is banned or is in the process of being phased out (ban on tethering in new buildings).

Buildings may be closed or open on one side. Inside, there are separate pens.

As for the floor, one of the main systems is a full concrete slatted floor. Given the impact on hooves and joints, there is a tendency to cover them with strips of rubber matting. Urine flows into the pit underneath, and faeces also pass through as a result of the animals trampling on it. The alternative is a solid floor with a substrate (e.g. sawdust, wood shavings, sand), the most common of which is straw bedding. Sometimes there are two areas: a slatted feeding area and a straw-bedded resting area. Straw can be managed as accumulated bedding: it is added regularly, and the manure is removed infrequently, sometimes after a few weeks, sometimes only when the animals leave. In the case of the straw-covered slope, a slope of 8 - 10° means that the soiled straw, pushed down by the trampling of the animals, descends and is evacuated from the pen at the lowest level, while fresh straw is added on the highest side. A completely different system is where the animals lie down in cubicles, which are more or less (un)comfortable, and they eat in the feed alley.

Depending on the carcass targets and slaughter age, the animals exceed 600 kg live weight and can approach 800 kg. The space available per animal varies from 2.4 to 5.5 m² for straw-covered pens and 1.8 to 3.2 m² for slatted pens. In slatted systems, the space available is around 1 m² per 200 kg of live weight, while in straw it is slightly more. The reason for this is that on slatted floors, the animals have to trample hard to get the faeces through the openings, whereas on straw the same density is too messy. Animals on slatted floors are therefore doubly penalised: they have both the discomfort and the lack of space that prevents them from lying down at ease, let alone walking at ease. Walking on the duckboards is uncomfortable and can become painful, especially as the animals are heavy. The lack of space means that the animals step on each other's tails, which has led to the routine trimming of tails, a practice that is increasingly being abandoned.

Exercise areas, which are compulsory in organic farming, provide access to the outdoors.

Feed for fattening includes silage, very often maize, and in any case energy-rich rations that often contain industrial by-products. The ration is also rich in soya. It is supplemented with minerals, vitamins and trace elements, as well as buffers (sodium bicarbonate and magnesium oxide). Concentrates and straw are theoretically in a 90:10 ratio (in dry matter).

There are pasture-based fattening systems, where the animals may or may not be supplemented with concentrates. The examples cited are Austrian, Polish and Irish.

3.4.2 Impacts and recommendations on the welfare of fattening cattle

In June 2025, EFSA published "Welfare of Beef Cattle". The main conclusions are clearly listed in the summary.[23] Below, we follow EFSA's developments in a little more detail:

Access to water: water must be clean. Trough-shaped troughs (a water surface) are recommended (at least 6 cm wide per animal). Nipple drinkers do not allow animals to drink naturally. Cattle drink by suction, with a flow rate of 24 litres per minute. As for bowl-shaped troughs, you need at least one for every 10 animals, and two in each pen.

The floor: the consequences of a hard, slippery floor are problems with resting (getting up and lying down), restricted movement, soft tissue and integument damage, locomotory disorders (including lameness, slipping and injury), respiratory disorders, inability to express comfort behaviours, sexual behaviour and play. Resting problems are also linked to the inability to chew and/or ruminate. For all these problems, a solid floor with straw bedding is clearly more favourable. Rubber mats offer some improvements, but are still very inadequate. The best solution is to allow the animals to choose between different floors, with in any case a solid floor with bedding in the lying area. The quantity and frequency of straw intake are important. Cubicles are not recommended for fattening cattle.

Feed: concentrates generate high daily gain, and increasing concentrates reduces the amount of forage ingested. The impacts are metabolic and gastro-enteric disorders, group stress, the inability to chew and ruminate and to express exploratory and feeding behaviour. Metabolic disorders are linked to locomotor disorders, including lameness. Subacute rumen acidosis is caused by excess starch and insufficient roughage. This can cause rumen damage, diarrhoea and systemic inflammation. Rumen lesions and ulcers can be observed post mortem. The literature does not yet allow us to define thresholds for fibre in terms of quantity and size. Additives help prevent acidosis, but no additive can compensate for inadequate diet.

The inability to chew and/or ruminate, to explore and express food-seeking behaviour: a diet of concentrates with little roughage reduces the time available for rumination and oral behaviour (such as pulling grass), leading to stereotyped oral behaviour. Acidosis also leads to laminitis. The recommendation to increase roughage is particularly crucial on slatted floors. High protein levels in the diet are also a risk factor; this problem tends to occur on pasture (young grass).

[23] Abstract: *"This Scientific Opinion provides an assessment of beef cattle welfare focusing on risks related to flooring, water access, nutrition and feeding, high environmental temperatures, lack of environmental enrichment, lack of outdoor access, minimum space allowance and mixing practices. In addition, risks related to pasture and feedlots, weaning of suckler calves, mutilations (castration, disbudding, dehorning and tail docking), and to breeding practices (hypermuscularity, dystocia and caesarean sections, polledness, maternal ability and temperament) are assessed. Decision-making criteria for the euthanasia of cull cows are also addressed. A selection of animal-based measures (ABMs) suitable for collection at slaughterhouses is proposed to monitor on-farm welfare of fattening cattle. Recommendations to improve the welfare of housed fattening cattle include increasing space allowance and feeding more roughage in relation to current practice, and promoting the use of well-managed bedded solid floors. Provision of enrichment such as brushes and roughage and an outdoor loafing area for housed cattle are recommended. Cattle kept outdoors should have access to a dry lying area and sufficient shade. Water should be provided* ad libitum *via large open water surfaces, and the use of nipple drinkers should be avoided. Mixing of unfamiliar cattle should be avoided and groups should be kept stable. Mutilations should be abstained from, but if carried out, a combination of analgesia and anaesthesia should be applied regardless of the calf's age. Early weaning of suckler calves should be avoided (≤ 6 months). Homozygous double-muscled animals should be excluded from breeding. Selected ABMs for collection at slaughterhouses to monitor some of the highly relevant welfare consequences experienced by fattening cattle on farm are body condition, carcass fat levels, carcass condemnation, lung lesions and skin lesions. Key data gaps identified are thresholds for dietary fibre, ABM thresholds for fitness for transport and potential long-term effects of mutilations on pain sensitisation."*

Group stress and aggression in the feeding area are reduced by the constant presence of feed and sufficient space for all the animals to eat simultaneously.

Lack of access to the open air: this is by far the most frequent case. Systems with grazing have much slower growth rates. Organic farming requires at least an outdoor exercise area. Lack of access to the outdoors has major impacts: restriction of movement, inability to play, sensory under- or over-stimulation, group stress, inability to escape unwanted sexual behaviour, inability to explore and search for food, heat stress. Curiously, there is almost no research on the effects on welfare in fattening cows with or without access to the outdoors, but there is for dairy cows. Access to the outdoors provides exercise. More space encourages locomotor behaviour and play. The ground is more favourable. Sun, rain, wind and smells stimulate. A natural floor is more comfortable to lie on. The open air can enable lower-ranking animals to avoid the dominant ones. Pasture provides stimuli and resources that encourage exploration and feeding. An exercise area offers more opportunities for enrichment than indoors. But when the weather is bad, cows avoid going outside. The best thing is to offer the animal a choice. For animals outside, shelters offer interesting microclimates, particularly shade.

Enrichment is not widely practised or studied in fattening cattle. It is mainly roughage and brushes. Exploration is linked to novelty. Clearly, grazing is the most stimulating. Giving the animal a certain choice of feed is an avenue worth exploring.

Comfort behaviour (licking, scratching, shaking, etc.) is important, and brushes are highly appreciated. Trees are also used for scratching.

The mixing of animals (reallocation) leads to group stress, the inability to avoid unwanted sexual behaviour, the stress of being handled, separation stress, respiratory disorders, skin and tissue lesions, bone lesions (including fractures and dislocations). Any change in the group (division of the group, introduction of a new animal, etc.) means that the established hierarchy is broken, creating stressful situations. Mixing animals inevitably leads to welfare problems.

There are many other aspects to examine (e g high temperatures), but let's focus now on the space available. We have seen that in the usual European systems on slatted floor, animals often have only 1 m² per 200 kg live weight. In fact, it's rather 'inflated' that European producers, with such systems, would dare to believe that European livestock farming would be so much better than livestock farming elsewhere (the real strength of the Europeans being the ban on growth-promoting hormones). Cattle are motivated to maintain an average inter-individual distance of 4.7 m. According to EFSA, alculated on this basis for a pen of 8 animals, the lying area for each animal should be 11 m² (Note: this calculation assumes that several animals are lying on the edge of the pen, whereas in practice there are neighbouring pens where the animals would also be lying on the edge of the pen; so the edge of the pen cancels out the need for a distance of 4.7 m, as the lower part of the partition is opaque - but the drinking troughs are often on the edge, accessible for both pens). Then you have to add the surface area dedicated to feeding. For cattle > 400 kg in groups of 8, this gives a total space per animal (in the building) of 13 m². As there are no studies on areas > 6 m², we do not know at what surface aggressiveness decreases. It is therefore **recommended to increase the area per animal to around 13 m²** (> 400 kg) to allow synchronous lying and reduce group stress, and a width of 60 cm per animal at the trough for ad libitum feeding. 13 m²: this is at least 3 times more than usual practice!!!

The welfare of cattle on pasture also has its risks: inadequate nutrition (insufficient or too rich), hunger (especially when wintering outdoors), bad weather, lack of shade for all the animals, access to water, parasites, lack of dry bedding areas, etc.

As for fattening in feedlots, as practised on other continents and to some extent in southern Europe, the recommendations stress the risks associated with mud (lying down, locomotion, comfort behaviour, etc.), as well as dust, easy access to water for all, and the absence of shade and shelter.

The EFSA report also discusses the serious impact of the (usually brutal) separation of suckler cows from their calves. This does not directly concern our subject, which is that of dairy calves, but it nonetheless highlights the extent to which the usual production systems are based on tragic violence that tears the maternal bond apart. Moreover, this same violence has often been used against human families, from whom children have been taken on the pretext of religion, culture, race, education or slavery. Many families in the world send their children voluntarily to sinister boarding schools or, if they are very poor, sell them. While in rare cases separation can be beneficial or even liberating, too many tears have been shed to make it a principle. As for cattle, the separation practised is clearly and without the slightest ambiguity contrary to their nature, which is life in their herd, with progressive distancing for the males, while the females remain close to their mothers, retaining preferential links for life.

EFSA also deals with mutilations, which are traditionally particularly cruel acts, because disbudding (burning off the horn buds on calves) and castration are carried out without anaesthetic or with analgesics that are highly ineffective (N.B. methods are slowly evolving). Neither of these methods are used on veal calves or young cattle (which are by definition not castrated), but they can be used on non-replacement dairy calves if they are intended to reach a higher slaughter age as heifers or steers. It turns out that recommendations for castration, concerning the least painful methods, differ between countries and experts. It is certain that the minimum required is sedation + local anaesthetic + analgesic (anti-inflammatory). Prolonged pain is reduced but not controlled. General anaesthesia of the calf for surgical castration by a vet has a cost. It's a dilemma. On the one hand, castration is painful for the animal, and EFSA recommends avoiding it. On the other hand, castration allows prolonged rearing on pasture, and enables young males and females to be fattened together in the pasture; this brings considerable benefits in terms of wellbeing compared with fattening in confinement. But is it possible to keep young bulls non castrated while allowing them to go out to pasture? Many breeders will say "impossible!" But it used to be done, and some organic farmers do it. But it's a tricky thing to ask for a practice that may involve a safety risk, if the farmer doesn't feel that he has the capacity and desire to manage happy young bulls, with a vocation for an excellent human-animal relationship. So you need a suitable plot of land. However, on reflection, it's sad that the job of fattening young cattle in confinement consists of making the animals 'calm' by lack of space, without any empathy towards them other than monitoring their health and average daily gain (ADG), which is around 1.5 kg per day.

Another issue that concerns dairy calves is the cross-breeding of Holstein dairy cows with a breed that is homozygous for hypermuscularity, in this case with the Belgian blanc bleu, animals deformed by enormous muscles at their rear. Cows of this meat breed systematically have to undergo a caesarean section to give birth, which has a serious impact on their well-being. In short, breeds like these shouldn't even exist; in fact, they are banned in organic farming, and Sweden has tried to ban them. But dairy farmers are trying to get more value out of their calves, and to this end they inseminate their dairy cows with beef bull semen. The selection of Belgian blanc bleu bulls has favoured relatively small calves, which would cause fewer dystocia in Holstein cows than other crosses with large meat breeds. But above all, calves are much more profitable. Once again, the respect for the living animal does not outweigh the profitability of the carcass. EFSA is clearly in favour of abandoning animals homozygous for hypermuscularity (culard), which is the case with the Belgian blanc bleu.

In conclusion, the incompatibility of the prevailing fattening conditions with the welfare of the animals concerned is obvious. The lack of access to the outdoors is one of the reasons for this. The extreme lack of space, discomfort, unsuitable flooring, mixing of animals and unphysiological feed are others.

Cattle fattening in confinement cannot meet the animals' welfare needs. It is not a good answer to the dilemma of dairy calves.

Open-air exercise areas (compulsory in organic farming) are a first step towards progress.

But all the evidence points to the need to rediscover the benefits of grazing for all animals. This means ensuring the well-being of animals on pasture: access to water, a dry lying area, shelter, shade, group stability, protection against hunger and parasites, care when needed, the animals' trust in humans, as well as more spacious and comfortable winter barns, and generally a more physiological diet than that practised in very intensive fattening.

We need to rethink the beef industry. The fattening of non-renewal dairy calves must be part of a rethought beef industry, and must stimulate this rethinking.

The meat market, which is only concerned with the carcass and the price, has done enough damage and caused enough misery. It's time to defend sensitive living beings in a livable planet.

4. Environmental impacts: emissions and intensification

4.1. Reducing greenhouse gas emissions and industrial interests

4.1.1. Methane emissions and livestock growth

Livestock farming generates around 12% (9 to 25%[24]) of global anthropogenic greenhouse gas emissions, and in France 11.8%[25] of greenhouse gases are due to cattle farming. **The reference emission for a dairy cow** through enteric fermentation is **3t CO_2eq/year** (2t CO_2eq/year for a suckler cow)[26] . Emissions increase with cow productivity; however, as the number of cows falls, total emissions are falling in France. Total methane emissions are the sum of enteric methane, which is estimated at between 100 and 125 kg per bovine per year, and methane linked to manure, which varies between 20 and 50 kg . [27]

To obtain the CO_2equivalent of the quantities of methane emitted, we multiply by its GWP (Global Warming Potential), which by convention is **GWP100**, i.e. estimated over 100 years; this is 27. This gives an order of magnitude of 2.7 t CO_2eq/year for a dairy cow emitting a total of just 100 kg, whereas we have just learned that on average dairy cow emits a total of between 120 and 175 kg, which for a GWP 100 comes to **3.2 to 4.7 t CO_2eq/year** (more than the reference emission!).

But if we apply **GWP20**, which assesses the warming effect over a 20-year time horizon, the equivalence factor is 79.7, which gives a dairy cow **9.6 to 13.9 t CO_2eq/year at GWP20.** Given the urgency of the situation, a calculation with a time horizon of 20 years is legitimate. The earth's habitability is at stake in this timeframe. It is clear that with a GWP20 calculation, the small steps we can take to reduce emissions (even through intensification or planting hedgerows) and even the carbon storage in grasslands are even more derisory than with a GWP100. Which just goes to show how urgent this is.

This quick overview alone shows that the figures for livestock emissions depend on conventions (which may change) that define emission factors and are based on very rough averages. Adjusting the figures to reflect the diversity on the ground is a never-ending task.

Methane differs from CO_2 in that its warming power is much higher (between 27 and 79.7 times higher, depending on the timeframe used), but it has **an estimated lifespan of 11.8 years** compared with CO_2, which is still present and undegraded after 1,000 years. In the case of CO_2, it is therefore the cumulative sum of emissions over the decades that determines global warming. In contrast, the concentration of methane in the atmosphere can fall relatively quickly, given its relatively short lifespan. A deliberate reduction in methane emissions can therefore lead to a certain reduction in the concentration of GHGs in the atmosphere within a decade, whereas the concentration of CO_2 does not fall, even if CO_2 emissions do. There is very little time left to take action to stay below 1.5-2° of warming and avoid irreversible tipping effects (death of the oceans, melting of permafrost, rising sea levels, desertification, storms, etc.) that will render vast regions uninhabitable. That's why we need to pull out all the stops to reduce methane emissions and put the brakes on global warming within the decade.

[24] Enteric methane mitigation interventions. Julia Q Fouts et al, 2022

[25] Cour des Comptes : Les soutiens publics aux éleveurs de bovins, November 2022, emissions according to CITEPA for 2018 *(Court of Auditors: Public support for cattle farmers)*

[26] Haut Conseil pour le Climat November 2022 link

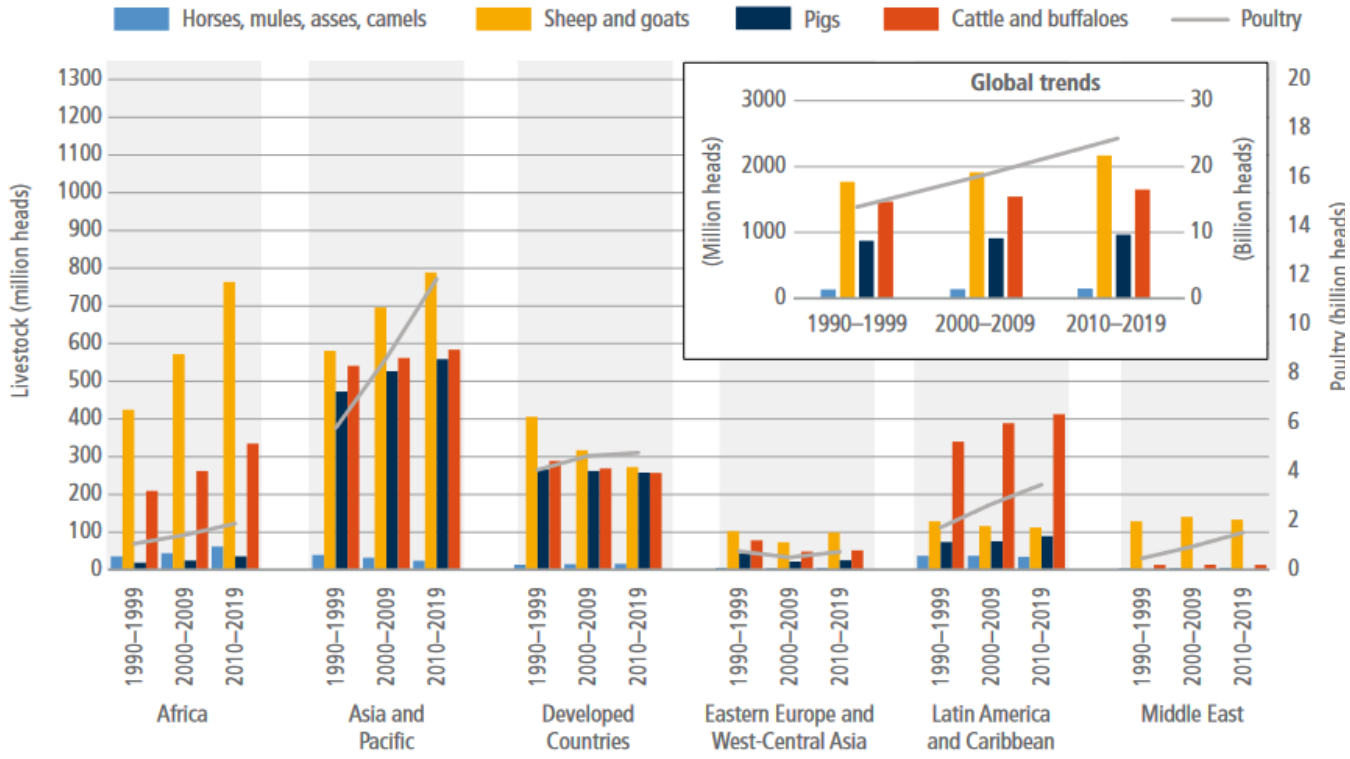
[27] Rapport CGAAER n°23047 : Alimentation et élevages : externalités positives. Janvier 2024 https://agriculture.gouv.fr/telecharger/144273 *(Food and livestock : positive externalities)*

The opposite is happening. The increase in methane concentrations in the air is accelerating[28] . 40% of methane emissions are natural and 60% of human origin, with agriculture being the main contributor (especially ruminants and then rice) followed by fossil fuels. Given the urgency of the situation, we need to pull out all the stops.

A counter-argument in the debate is that ruminant emissions are part of a natural balance, given the large herds of wild herbivores that grazed before the deadly arrival of humans. Methane degrades into CO_2, and the photosynthesis of plants that feed ruminants consumes CO_2 ; it's a cycle. A reasonable livestock population that does not increase its emissions would not harm the climate. But even then, greenhouse gas concentrations would have to return to pre-industrial levels!

So we need to look at the bigger picture. The natural cycles of carbon, nitrogen and even water have been seriously disrupted. Human demographics are out of control, the planet is being plundered, biodiversity is collapsing, the oceans are preparing to swallow islands, coastlines and cities, and meteorological hazards are ravaging harvests.

The world's livestock population is increasing.



Source: IPCC AR6 WGIII page 772: Fig 7.10 General trends in livestock numbers over 3 decades.

From page 771 of the IPCC AR6 WGIII 2022 report:

"The most recent data (FAO 2021c) indicate continued growth in global livestock numbers between 1990 and 2019, including 18% growth in cattle and buffalo and 30% growth in sheep and goats, which is consistent with trends in CH_4 emissions. The data indicates an increase in productivity per animal, for example average increases of 16% for beef, 17% for pork and 70% for (whole) milk per cow between 1999 and 2019 (FAO2021c). Despite these advances, which lead to lower emissions per unit of product (calories, meat and milk) (FAO 2016; Tubiello 2019), the increase in individual animal productivity generally requires higher inputs (e.g. feed) and this generates higher emissions (Beauchemin et al. 2020). ...

[28] WMO (**World Meteorological Organisation**) GHG Bulletin n°18 2022

4.1.2. A quick look at nitrous oxide emissions

Nitrous oxide N_2O is the third major greenhouse gas. It accounts for 6% of radiative forcing and remains in the atmosphere for 121 years. Its GWP100 is estimated at 265. It also depletes the ozone layer. Its concentration in the atmosphere has more than doubled since the pre-industrial era. Agriculture is responsible for 89.6% of French emissions. Emissions take place where reactive nitrogen is found, i.e. in manure and fertilisers. N_2O is complicated to control, since it is produced by chemical reactions, nitrification and denitrification, which depend on many factors. While methane is produced in anaerobic conditions, nitrous oxide benefits from conditions that are both humid and oxygenated.

Emissions can therefore come from animal housing, effluent storage or spreading. Grazing also produces emissions. But most of them come from the soil, after the application of fertilisers, whether organic or mineral.

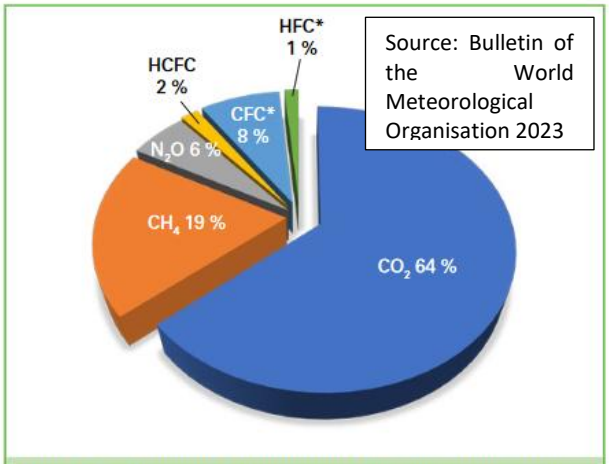


Figure 4. Contribution des principaux gaz à effet de serre persistants à l'augmentation du forçage radiatif mondial depuis l'époque préindustrielle jusqu'en 2022 [5].

In addition to the nitrogen oxides produced by combustion, the **wide range of pollution caused by excess nitrogen** includes the typically agricultural pollutants of nitrates in water and volatile ammonia. Both come from livestock manure and fertilisers. Ammonia is an issue in terms of public health (contribution to fine particles), eutrophication and environmental acidification. To reduce ammonia emissions from fields, it is recommended that slurry be buried or injected into the soil, but this increases N_2O emissions.

The main solution for reducing all these emissions is therefore to reduce nitrogen fertilisation and adapt it very precisely to the needs of the plants. Organic farming, which bans mineral fertilisers, is recognised as exemplary in terms of nitrogen pollution. It also has lower yields.

Surplus nitrogen is not the only argument in favour of sparing use of mineral fertilisers. Their manufacture consumes a lot of energy, especially fossil fuels. Secondly, these fertilisers are largely imported, leading to a dependency that is incompatible with food sovereignty. We have thus outlined three arguments in favour of replacing mineral fertilisers as much as possible with legumes, and grasslands, which provide proteins.

As far as livestock farming is concerned, ammonia and N_2O emissions are supposed to be proportional to the amount of nitrogen excreted by the animals. They can be roughly estimated using emission factors. However, they depend on temperature, humidity, pH, etc. and can differ depending on whether urine or faeces are involved, separately or mixed. Precision feeding, with just the right amount of protein, aims to minimise nitrogen excretion. It is considered to be the key tool, well suited to industrial livestock farming, for combating nitrogen emissions.

Livestock farming emits ammonia, methane and N_20 through manure. In addition, all the emissions produced by the crops used to feed the animals must be attributed to livestock farming. This is not always done. "*In total, indirect emissions upstream and downstream, i.e. excluding enteric fermentation, are estimated at 30.3 MTeqCO_2 in 2018, almost as much as emissions from livestock farming.*[29] And let's not forget the dangerous impact of the pesticides used on these crops.

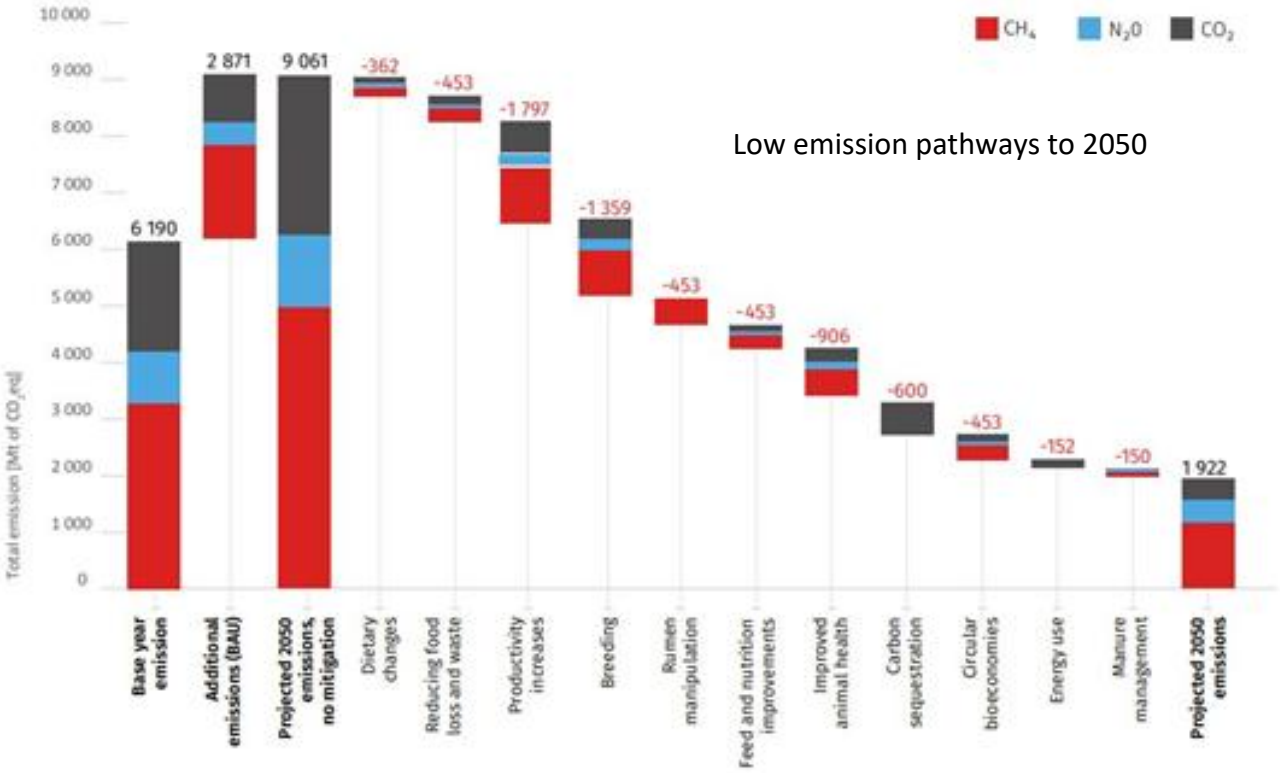
[29] (France) Proposed assumptions for the AMS scenario of the SNBC3 for the Agriculture sector. INRAE 2023 page 24

4.1.3. How can emissions be reduced (following an FAO report)?

This chapter discusses the technical options for reducing emissions, based on an FAO publication that adopts a global perspective. The reduction in animal protein consumption, which is of particular interest and motivation to us, will be discussed under 4.3, where we will also find technical options with INRAE and the National Low Carbon Strategy.

There is a plethora of publications containing **recommendations for reducing emissions**, including a recent **FAO report[30] from 2023**, which is based on considerable scientific resources and global data. The report validates the increase in demand and consequently in the production of food from animals of + 20% between now and 2050. It calculates the resulting increase in emissions in the 'business as usual' scenario at 9,601 $MTCO_2eq$ in 2050. It then lines up and aggregates (graph below) all the ways in which these emissions could be reduced, so that by 2050, despite this increase in production, emissions will have fallen to just 1,922 $MTCO_2eq$, a reduction of 80%! To be fair, the authors of the report don't believe it themselves; they acknowledge the flaws in the construction (including double counting).

This is particularly striking for the two areas with the most massive theoretical reductions: increased productivity (20%!) and genetic selection (8%!), but also rumen manipulation (5%) and improved rations (12%), and circular bioeconomy (5%). Remarkably, each of these approaches reflects major industrial interests. Manure management accounts for just 2% of the total: there is no miracle in the biological processes associated with manure, even though the drive to modify the biology of rumination is fierce, as we shall see in detail later. As for silvo-pastoral systems (which, with their attractive image and their nice small farmers, serve to whitewash livestock farming in the face of criticism), they are hidden in the 2% of manure management. It's hard to trust such a set-up!



Base year and projected emissions from livestock systems shown as a waterfall chart with a range of mitigation measures applied to 2050 with their technical potential Note: 100 percent adoption is assumed. Interventions are assumed to have cumulative impacts ... Source: FAO Pathways towards lower emissions, page 31

[30] FAO: Pathways towards lower emissions. A global assessment of the greenhouse gas emissions and mitigation options from livestock agrifood systems, 2023

Acknowledging the **immense economic interests at stake** in no way exempts from the need to take an objective and lucid look at the means put forward to reduce emissions. The FAO thinks in global terms, including high-income countries as well as low- and middle-income countries. It is complicated to address the industrial systems of the North and the pastoral systems of the South together. And it is undoubtedly Asia that will be the driving force behind highly intensive industrial systems. Lobbyists in the North are using the needs of the South to develop their productivist discourse in the service of their profits. Although the FAO mentions a number of reservations and safeguards in its text, the manipulative use of the maximalist reductions shown above seems likely.

Let's begin by examining the possible courses of action designed to reduce enteric methane emissions[31] and pointing out the uncertainties associated with the promises made. The first reservation is that we need to take account of the upstream and downstream impacts of the proposed measures and their possible undesirable effects. Generally speaking, increasing the amount of concentrates (particularly maize) in the ration reduces methane emissions compared with cellulose-rich fodder, but concentrates have other environmental impacts, including the use of fertilisers and pesticides, they compete with human food (see details below), and their excess makes the animals sick. The quality of fodder can reduce emissions by making it more digestible and containing less lignin, but at no point do the publications mention the biodiversity issues involved in grassland management. The addition of lipids to the ration modifies and reduces methanogenesis; too much is detrimental to the animal's health. Coconut oil, safflower, hemp, canola, cotton... but what would be the impact of all that? Extruded linseed would be effective, but the areas that would need to be cultivated to use it on the scale of French livestock farming are unrealistic[32] . Lipids can reduce the digestibility of fibre, so they are preferentially used in feedlots (which are very intensive, where little fibre is fed), and they also increase methane emissions in manure. Now to the additives. First, methanogenesis inhibitors. 3-nitroxypropanol (3-NOP) (Bovaer from Royal DSM, NL) is already on the market. Its action is reduced by the presence of more fibres. It seems to be rapidly metabolised and must therefore be continuously present in the feed. Then there are macro-algae, whose active substance is bromoform, which inhibits a methanogenesis enzyme but also reduces milk production. Bromoform destroys the ozone layer and seems to pass into the milk (as does iodine). The final GHG balance is not clear. Changes to the ruminal environment include nitrates, which can provide nitrogen like urea, but with a risk of toxicity. Essential oils can interrupt microbial function to a considerable extent - not necessarily desirable! Tannins can be toxic. They can have positive and negative effects (e.g. grape marc). It has been predicted that direct genetic selection would reduce emissions by 24% in 30 years, but the basis for this is uncertain. Indirect selection targets reproductive and feed efficiency, but this is not always linked to lower methane emissions. Genomic selection shows promise, but does not (yet) have the useful data. The combination of different methods has produced good results according to some studies, but there may also be interference.

This brief review of the proposed means of reducing enteric methane emissions shows the extent to which the dairy and meat industries are obliged to develop artefacts in order to circumvent the limits that a habitable planet imposes on their activities. The various additives represent significant costs, and therefore profit opportunities for manufacturers. But given that the remuneration of milk and beef already poses enough problems, there is a great risk that, in Europe, it will be the CAP (the taxpayer) that will finance the additives, and indeed the European Commission is talking along these lines. So, once again, the public money that should be enabling a transition to truly sustainable practices will be diverted to protect the interests of business as usual.

[31] Julia Q Fouts et al: Enteric methane mitigation interventions, 2022

[32] Proposed assumptions for the AMS scenario of the SNBC3, INRAE, 2023

The rhetoric surrounding methane emissions from cattle is full of contradictions.
Fibre-rich fodder is reputed to be more methanogenic than the concentrate rations of intensive livestock farming. Yet the key argument in favour of cattle is their ability to digest grass (high in fibre!).

The accumulation of an incredible number of studies on the effects of this or that feed or additive paints a caricature of an industry that is bent on attacking the biology of ruminants in order to safeguard its profits and create new ones. The colossal resources developed for this research call for more and more, as the results raise so many questions.

And the clear alternative option of LESS and BETTER remains stifled.

Everything would be better if such resources were developed to reform the economic framework and ensure fair prices for humane and relocated livestock farming, so that animals remain throughout their lives in the grasslands where they were born.

Let's look at the other ways of reducing greenhouse gas emissions from livestock farming.

According to the FAO report, the circular bioeconomy focuses first and foremost on the use of by-products and waste, even if this means raising insects. This overlooks the fact that the tension surrounding these products is becoming increasingly acute, given the development of methanisation, thereby increasing their price. We'll look at this in more detail in the chapter on feed/food competition. Secondly, it is claimed that livestock manure could provide nitrogen and phosphorus for plants, increasing from 12% of N to >80% of N and P overall; this is the assertion of a 2010 publication whose claims are no longer acceptable (see below).

As for energy consumption, it is much higher for American-style feedlots and intensive systems than for Brazilian pastures or pastoral systems.

As far as the production of renewable energy is concerned, this is also a deception. There is no need for livestock buildings to install photovoltaic panels (there are enough rooftops, car parks and other artificial surfaces); it's just a windfall effect for producers. As for methanisation, it needs available manure, which means that it has to be produced in buildings by confined animals, which is contrary to animal welfare. If, according to examples promoted by SOLAGRO, methanisation has not led to a reduction in grazing, this is probably linked to pre-existing confinement practices that are not very appreciable for certain categories of animal (unless you have the means to alternate the inputs to the methaniser over the seasons, which is a conceivable alternative). Furthermore, the environmental balance sheet claimed for the methanisation of livestock manure is not credible insofar as the manure that enter the system are considered (by convention) to be waste, and therefore to have no carbon footprint, whereas in reality livestock farming has a considerable carbon footprint. The real question is this: couldn't we do better and more usefully with the land used to feed so many confined animals? Partitioning by calculation conventions hides realities.

Various techniques for managing manure (air washing, impermeable covering of pits, spreading by injection....) lead to a reduction in CH_4 emissions but an increase in N_2O, another even more powerful GHG. Few strategies (including acidification) make it possible to reduce N_2O and CH_4 at the same time.

Strangely enough, the FAO report hardly comments on the issue of soya from deforestation or destruction of the cerrado; in the chapter on livestock feeding strategies, the risk is only mentioned in a short sentence (page 22). Yet it is a central element of the European approach to LCA (Life Cycle Assessment) and decarbonisation, as set out in France's Duralim initiative (in anticipation of the

European regulation) *"for 100% sustainable animal feed"* with *"100% sustainable supplies by 2025 at the latest"* and above all with the fight against deforestation, in line with European and national strategies. The preservation of the cerrado is explicitly included. This is an excellent move, even if the "100% sustainable" approach raises doubts.

In conclusion, for all these players, reducing livestock numbers is not on the agenda, despite all the warnings. They are promising supposedly cumulative 'potentials' for reducing GHG emissions. These mirages do not even take into account the effects of climate change: livestock drowning or dying of thirst in the South, suffering from heat stress and epizootics in the North, increasingly uncertain yields, crises here and there, and always looking for compensation and public support. Expressed differently by zootechnicians[33] : "*the intensification made possible by technical progress can no longer be expressed in the current climatic context... The reduction in forage intensity (LU/haSFP) is inevitable: fewer animals or more land?* Or[34] : *"In the long term, livestock farming cannot be maintained, at least according to the most pessimistic projections in certain areas, due to weather and climate disruptions affecting grass and forage production and the economic equilibrium of production systems".* If that's the case, why is the sector fighting so hard against the decapitalisation of livestock?

Let's get back to our main subject, animal welfare. We are faced with a dizzying gap between, on the one hand, the extreme sophistication of physico-chemical, microbiological and molecular approaches, right up to the manipulation of the animal genome, **and, on the other, ignorance, denial and even barbarism** at a time when animal ethology and ethics should be reaching the same level of development and implementation.

Unfortunately, working on the carbon footprint does not mean respecting living things.

Improving animal health is quoted in the name of the climate. Every sick or dead animal represents lost resources and 'unnecessary' emissions. This is perfectly understandable in the countries of the South, where there is a shortage of veterinary resources, and where parasitism, dietary imbalances and disease create harmful distress. But in Europe, did we have to wait for climate change to improve animal care? Anything goes when it comes to expanding the list of climate actions in the quest for carbon financing! And all this in the pursuit of the highest productivity at the lowest cost, because that's all that's been taught and what we know how to think and do in terms of 'support' for farms.

So herd management, in the name of the climate, consists of speeding up production, with earlier first calvings and a reduction in so-called unproductive time. To increase the longevity of the cows, an average of one calving is added. This means we can breed slightly fewer replacement heifers. Or rather: a certain number of heifers no longer appear in the dairy farm's carbon footprint, and so every good 'carbon' point will make it easier for the farm to obtain carbon credits or other benefits. Yet as long as the calves are born, they are somewhere - unless they are killed at birth, which, with such absurd calculations, would be 'better' for the farm's climate footprint. Moreover, veal calves are (historically) killed young and 'white' in particular to relieve the red meat market. What a false efficiency! The effort of a gestation period, of a birth, of a desperate little life, count for nothing and are not included in carbon assessments. In fact, a 'white' veal calf on liquid feed cannot develop rumination (its condition is pathological), so it emits virtually no enteric methane until its

[33] Face aux aléas climatiques, quels sont les impacts et les leviers d'adaptation sur mon exploitation laitière ? Synthèse des simulations faites sur 4 cas-types du Grand-Est. Inosys Réseaux d'élevage 2019
(Faced with climatic hazards, what are the impacts and levers for adaptation on my dairy farm? Summary of simulations carried out on 4 typical cases in the Grand-Est region. Inosys Réseaux d'élevage 2019)

[34] CGAAER : Leviers d'adaptation de l'élevage de ruminants et des systèmes fourragers au changement climatique : état des lieux et propositions. Octobre 2021, page 93 *(Levers for adapting ruminant farming and forage systems to climate change: current situation and proposals)*

early death. So all's well for the climate, against nature and against health? The only coherent and effective way of protecting the climate by reducing the number of unproductive animals is to lengthen the lactation period of dairy cows - in other words, not to breed these animals.

Let's add that the CGAAER[35] admits zero methane emissions in the first year of a bovine's life. This is patently false. Rumination occurs in normal reared calves. Once again, nonsense.

It's high time to develop, alongside the carbon footprint, the moral footprint for livestock farming in general as well as for individual farms.

4.2. Grass, biodiversity and climate

Grasslands store carbon. The sequestration flow offsets on average a quarter of a cow's enteric emissions (6 to 45%[36]); this is calculated on the basis of GWP100, whereas we have seen that GWP20 would be relevant; in this case, the proportion offset by storage collapses. Carbon storage is by no means an argument for maintaining large numbers of cattle. On the contrary, it is a strong argument in favour of lowering stocking density, and therefore numbers, and thus obtaining a higher storage quota. All the more so as this sequestration is vulnerable to the vagaries of the weather and limited in time, leading to saturation in the long term. Optimistic forecasts for sequestration could well meet with the same disappointment as those for carbon storage by forests.

On the other hand, existing grasslands must not be turned over, otherwise the C stored in them will be released into the atmosphere. To improve the ratio between enteric emissions and storage under grassland, there remains the possibility of methanising part of the grass, a possibility that Solagro (Afterres) easily envisages to keep grassland while reducing livestock numbers, and even Poux (TYFA) can envisage it at a rate of once every 5 years without fundamentally changing the system. The SNBC3 (Stratégie Nationale Bas Carbone3), currently under consultation, provides for this. But what would the methanisation of grass mean for biodiversity: new intensification or an opportunity to extensify? What could be the regulatory framework for regaining more biodiversity?

Grasslands are the ideal soil cover to **protect water quality**. They receive no pesticides and relatively little fertiliser (although there may be excesses).

Grass is rich in nitrogen. Thanks to symbiotic nitrogen fixation, **legumes** are the only truly autonomous and indigenous source of protein in animal feed. Legumes are either grown on arable land (which is the subject of protein plans), or they are naturally abundant in meadows.

The proteins in meat, milk and eggs never come from nowhere. They either come from nitrogen-fixing plants, mineral fertilisers (or the redeposition of nitrogenous airborne pollutants) or organic fertilisers, but the nitrogen in organic fertilisers always comes from somewhere. One very common source of nitrogen is imported soya, often the result of deforestation.

Ruminant farming is often presented as the guardian **of biodiversity** because, without ruminants, grasslands would be turned over. This is only partly true. On the one hand, highly productive dairy

[35] CGAAER Alimentation et élevages : externalités positives Rapport n°23047, Annexe 9 *(Food and livestock farming: positive externalities)*

[36] Cour des Comptes: Les soutiens publics aux éleveurs de bovins *(Public support for cattle farmers)* November 2022, based on Peyraud and MacLeod: Future of EU Livestock: how to contribute to a sustainable agricultural sector? 2020.

cows and intensively fattened animals are fed more concentrates[37] , with little grass, even though (all the more so) the little remaining grassland is important to preserve. Silage maize counts as fodder, but is not as interesting as grassland. To increase the productivity of ruminants and/or increase their numbers, meadows are intensively managed, with early and repeated cutting and sustained fertilisation, resulting in the disappearance of flowers. Ever-greater and faster machinery is fatal for all small fauna. Modern grassland management is certainly partly responsible for the collapse in populations of invertebrates and other species that depend on it, and this is not sufficiently recognised and denounced because it is politically correct to associate grassland with biodiversity. Biodiversity benefits from grassland, provided that management is as extensive as possible, with varied mowing dates (no single date being good for all species) and unmown refuge areas, at least for a (significant) proportion of permanent grassland. Also, very intensive grazing is not suitable for biodiversity beyond undemanding species. In their scenario, Poux and Aubert adopt an average yield of 4.5 t DM/ha[38] , which leaves room for biodiversity but requires a reduction in livestock numbers. On the other hand, New Zealand and Ireland are increasing stocking rates, with New Zealand at 2.8 cows/ha (but the cows are small; 4,400 litres of milk/year) and a mineral nitrogen input of around 110 kg N/ha.

As for **protein autonomy**, 1 ha of grassland produces as much protein as 1 ha of soya; this is a formidable argument for grassland, which unlike soya receives no (or very few) pesticides. Grass, especially young grass, has a high protein content, and clover and other legumes contain considerably more. On the other hand, it is rather worrying for biodiversity if the aim of the Cap Protein programme is, in the name of protein autonomy, *to "make better use of our 13 million hectares of grassland"*[(25),] which no doubt means "intensifying" in order to have more livestock. Intensification means cutting or grazing before the seeds set, and using the most productive species and varieties. Favouring natural diversity with the 'prairie-pharmacy' concept is an interesting approach. It's not just about protein!

As for **grazing**, its beneficial effect on animal health and welfare is undisputed. It is claimed that 91% of French dairy cattle farms practice grazing[39] (whereas only a good quarter practise dominant grazing); still, it would be necessary to know which category of animal is grazing and for how many days? Sometimes it's just the heifers that graze, or just the dry cows, which get some rest. Sometimes the dairy cows graze (especially if they qualify for a premium), and the heifers stay indoors. Farm expansion and methanisation are not conducive to grazing.

What about the relationship between grazing systems and greenhouse gas emissions?

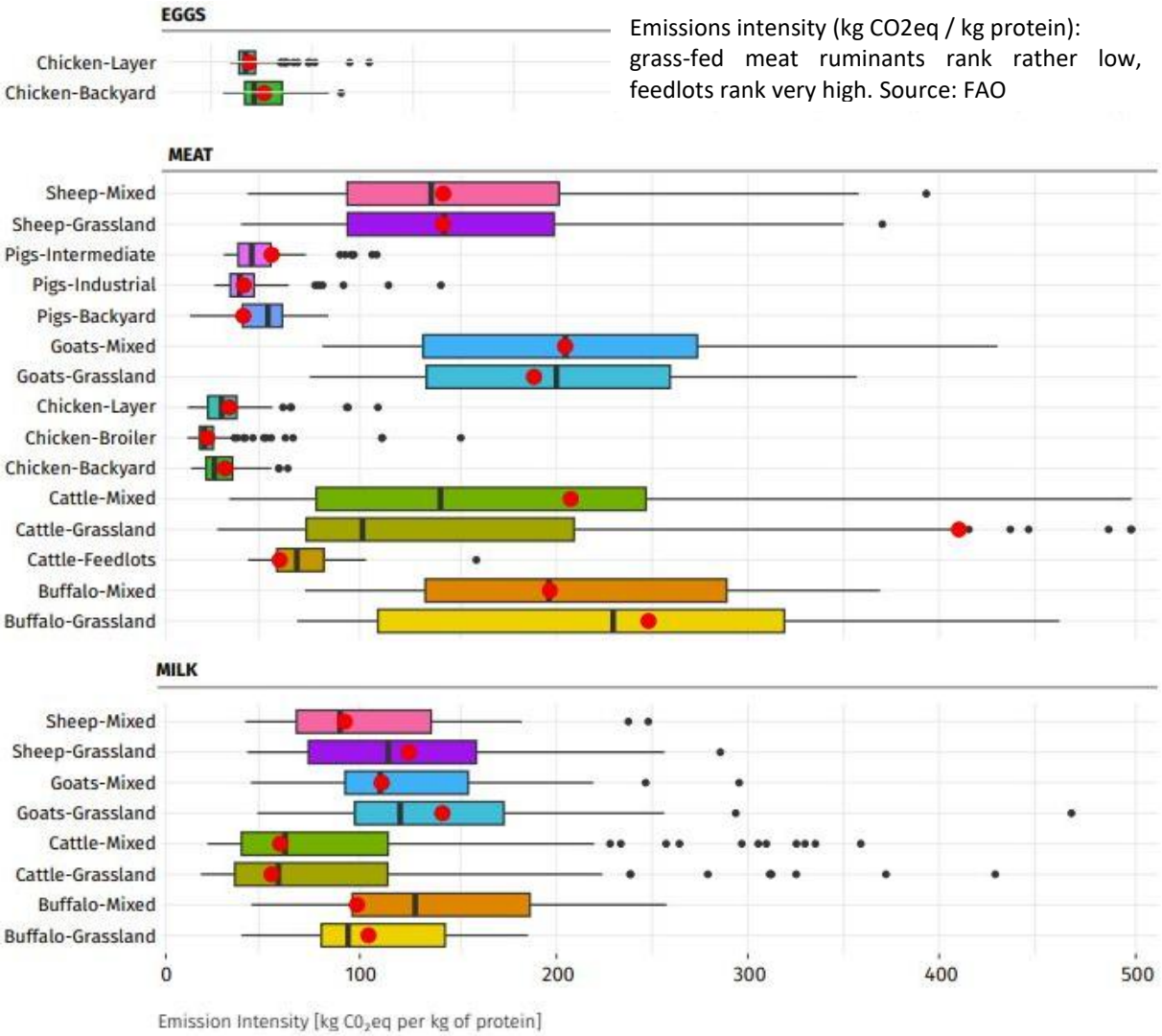
The visual in an FAO report (below), which shows the intensity of emissions in relation to the protein produced, is very disturbing indeed. The 'grass-fed beef cattle' system (from all over the world: Africa, Mongolia, Brazil, Europe, etc.) is shown with a variability ranging from around 25 to 500 kg CO_2eq/kg protein, with a median at around 100, a very surprising average at 410 and extreme values above that, and quantiles at around 80 and 245. The fact that the average is so high raises questions. Such disparity no longer means anything. Next to it, like a slap in the face, is the 'feedlots' system, with low emissions from around 45 to 105, a single highest extreme value and the mean as

[37] According to Cordier et al: Quantifier les matières premières utilisées par l'alimentation animale en France et segmenter les flux jusqu'aux filières consommatrices. 3R 2020. *(Quantifying the raw materials used in animal feed in France and segmenting the flows down to the consumer sectors)* In 2015, Dairy and Mixed Cattle consumed the following raw materials (estimate): 33.3 MT DM of fodder (including 21% silage maize) and 8.4 Mt DM85 of concentrates (including oilcake) and 5.1 Mt of by-products. For beef cattle, the figures are 30.4 Mt, 4.0 Mt and 1.7 Mt respectively.

[38] Poux and Aubert: Putting grassland at the heart of a European agroecological transition: Findings and questions arising from the TYFA scenario. 2022

[39] IDELE: Les chiffres clés des prairies et parcours en France. 2023 https://idele.fr/detail-article/les-chiffres-cles-des-prairies-et-parcours-en-france *(Key figures for grasslands and pastures in France)*

well as the median < 70. The display of low emissions in feedlots reflects the low cellulose content and absence of woody elements in the feed ration; yet it is precisely the marginal land with vegetation rich in fibrous elements that allows us to speak of an absence of food-feed competition (see below) and to argue in favour of grasslands and herbivores. It should be noted that feedlots run on fossil fuels, and CO_2emissions have an 'eternal' lifespan, unlike methane, which is the main greenhouse gas emitted by extensive systems[40] . This is an advantage even if certain extensive systems are not really justifiable for other reasons (e g Brazil).



Emissions intensity (kg CO2eq / kg protein): grass-fed meat ruminants rank rather low, whereas feedlots rank very high. Source: FAO

FAO : pathways towards lower emissions, 2023, Fig 9. Box-Whisker plots of the emission intensity for different production systems, species and commodity, aggregated by countries. Note: for countries with production > 1000 tonnes. The red dot indicates the global average value, and the box indicates the lower and upper quantiles, the vertical bar the median value.

Supporters of pastoralism feel threatened by these carbon footprint calculations, which favour feedlots and intensification. Manzano[41] argues that there is no way out of denigrating pastoral systems on the pretext of GHG emissions, because in the event of the disappearance of livestock

[40] R T Pierrehumbert and G Eshel: Climate impact of beef: an analysis considering multiple time scales and production methods without use of global warming potentials. 2015

[41] P Manzano and S R White: Intensifying pastoralism may not reduce greenhouse gas emissions: wildlife dominated landscape scenarios as a baseline in life-cycle analysis. 2019

rewilding, the return of wild herbivores and termites would be responsible for the same GHG emissions[42] . However, its logic corresponds to a rejection of land-sparing, which is also very dangerous for biodiversity. Moreover, without going into the debate, the opposition between land-sharing and land-sparing seems to stem from a somewhat theoretical conceptualisation, because if we look at the needs of wild species and the functioning of agro-ecosystems, it seems obvious that both approaches are imperative and that this double constraint must be taken into account in modelling. We need wild areas and refuges where wild herbivores and their predators are left alone and where the evolution of vegetation follows natural dynamics.

These same grazing stakeholders also feel threatened by anti-animal protein and anti-farming rhetoric, which inspires a reaction that seems a little too close to big 'meat lobby', insofar as they do not understand the distinction between reducing and abandoning animal proteins. Grasslands occupy up to 56% of land and are home to almost a fifth of cattle and a third of small ruminants. Why so little in percentage terms? Because there are far too many of them outside the grasslands, and we have every right to say so.

A particularly interesting experiment seems to be taking place in the Kaza region, which crosses the border between Botswana, Simbabwe, Sambia, Angola and Namibia, with 520,000 km² of protected area, where the principle is to allow wild and domestic herbivores to co-graze[43] . Co-grazing encourages plant diversity.

Also challenging the doctrine of the best footprint per kg of protein of the intensive systems of the North, a study in Kenya[44] surveyed the LCAs of small farms where grazing provided most of the livestock feed. Some of these small farms performed as well as intensive systems in terms of protein production. Expansion is irrelevant.

As for ecological arguments, research is producing some fascinating results. Here is a random, superficial overview. Among the advantages of silvopastoral systems[45] , is their biomass, which, thanks to its diversity, improves the soil. The effect of tannins in the ration increases the proportion of nitrogen present in dung to the detriment of urine, and dung emits less N_2O than urine. A wide variety of plants can reduce N_2O emissions. Trees encourage the abundance, diversity and activity of beetles, whose presence reduces N_2O and CH_4emissions. Nature has a way of doing things! But soil compaction increases emissions, which once again argues in favour of limiting the number of animals on the land.

An assessment of biodiversity on HNV (High Nature Value) farms[46] shows that biodiversity goes hand in hand with the occupation of a large surface area. Admittedly, GHGs can be high, particularly for sheep and goats. Yields are inevitably lower than on intensive farms. Feeding ourselves from High Nature Value farms implies changes towards a more plant-based diet.

But as mentioned above, the defence of extensive livestock farming on marginal land that cannot be converted into arable land is also abused to combat the reduction in animal proteins in the food system[47] . This line of reasoning appears to make good sense, while putting the climatic impact of

[42] P Manzano and Shannon R White: Intensifying pastoralism may not reduce greenhouse gas emissions: wildlife-dominated landscape scenarios as a baseline in life-cycle analysis. 2019

[43] DIE ZEIT Nr44 17.Oktober 2024 p39: Nicht ohne die Menschen. Wissen Naturschutz *(Not without the people. Knowledge Nature Protection)*

[44] P W Ndung'u et al: Farm level emissions intensities of smallholder cattle production systems in highland and semi-arid regions. 2022

[45] J E Rivera and J Chara: CH_4 and N_2O emissions from cattle excreta : a review of main drivers and mitigation strategies in grazing systems, 2021

[46] M. Torres-Miralles et al: Applying Life Cycle Assessment in European high nature value farming systems: Environmental impacts and biodiversity, 2024

[47] F Leroy et al: Animal board invited review: Animal source foods in healthy, sustainable, and ethical diets - An argument against drastic limitation of livestock in the food system 2022

livestock into perspective - but it does concede that for ruminants, a greater shift from cereals to pasture could be beneficial. Leroy et al[48] suggest an (unnatural) alliance between pastoralists and industry (see his declaration of interests). The problem is that at no point is there the slightest concrete indication of where the boundaries lie between what is acceptable and what is unacceptable, between what is potentially sustainable and what is not. In short, the article advocates drawing red lines; this is a good idea, except that the authors do not draw any.

4.3. Human nutrition and feed-food competition

The need for a much more plant-based diet is the consensus of many scientists who draw up future scenarios for food (Eat Lancet, European Nitrogen Assessment, ADEME, Afterres 250, TYFA, H Westhoek et al (2014), Billen et al (2018), E Röös).

INRAE[49] provides comprehensive dossiers on this issue. A healthy and sustainable diet includes much more plant protein, and it is a question of developing the relevant sectors and behaviours and overcoming the obstacles.

4.3.1 INRAE hypotheses in preparation for the National Low Carbon Strategy 3

The INRAE's proposed hypotheses for the SNBC3 (National Low Carbon Strategy) have the great merit of having systematically combined changes in consumption with reductions in livestock numbers. "*In all the studies, for a targeted reduction of 40 to 50% in greenhouse gases, the total reduction in meat consumption is between 40 and 50%, i.e. a consumption of between 90 and 100 g/d in 2050 (i.e. between 140 and 160 g/d in primary equivalent for a coefficient of 1.6 used by the SNBC)*". The target is to reduce net emissions (emissions minus absorptions) from the agricultural sector by 50% in 2050 compared with 2020, and by 21% in 2030.

The table below shows different figures for the breakdown of meat cuts between ruminants and monogastric animals (in which the starting consumption in 2010 for ruminants differs greatly). For all of them, total consumption in 2050 would be around half that in 2010.

Tableau 3. Détail de la composition de la consommation des viandes dans différentes études et différentiel entre 2020 et 2050.

En g/j tel que consommé	2010	2050	Δ 2050/2010
TYFA-GHG (Auber *et al.*, 2019)			
Viande de ruminants	36	29	-20%
Autres viandes	154	61	-60%
Total	183	92	-50%
Etudes nutrition-GES (données de base Nutrinet ; Seconda *et al.*, 2017)			
Viande bovine	63	26	-59%
Viande blanche (porc-volaille)	96	60	-38%
Total	159	86	-54%
Etude Nutrition-GES avec contrainte technique lait-viande ruminant (Barré *et al.*, 2018)			
Viande bovine	45	30	-35%
Viande blanche (porc-volaille)	100	40	-60%
Total	140	70	-50%

[48] It is hardly surprising that F Leroy is one of the driving forces behind the Dublin Declaration, which was drawn up by 1,200 scientists, but which is in conflict of interest with the meat industry.

[49] https://www.inrae.fr/alimentation-sante-globale/proteines-vegetales

The INRAE proposal for the AMS scenario (With Supplementary Measures as opposed to the AME scenario With Existing Measures) of the SNBC3 actually includes a discussion of several possible scenarios, with different reduction figures for ruminants, pigs and poultry.

The values of the key variables proposed for the assumptions of an AMS scenario are as follows for food: -40% for red meat; -30% for dairy products; -20% for poultry; no reduction for eggs.

This amounts to a reduction in livestock: suckler cows by -40% and dairy cows by -30%, i.e. a 35% reduction in the total number of cows, with fewer replacement animals. The increase in milk productivity would be +6%, which is surprising given the target of +260% for pasture-based systems. Goat production is expected to fall by -40%, due to unsustainable production (difficulty in adding value to kids). Broiler poultry would fall by -20% and pigs by -35%. These figures are discussed in thematic notes, with some nuances and taking into account, among other things, trade balances.

Generally speaking, the trade-offs involved in distributing the reductions between grazing livestock, pigs and poultry depend on the perspective adopted:

- in the name of the climate ruminants are reduced (because of methane).
- In the name of healthy nutrition, red meat and processed meat (charcuterie) are reduced.
- in the name of meadows and landscapes, ruminants are kept on grass.
- In the name of food-feed competition, the number of monogastric animals and cattle fed on concentrates are drastically reduced.

And in the name of animal welfare? In all these reflections and scenarios on food consumption and the environmental footprint, the needs of animals are generally given very little consideration, if any at all. Grazing is certainly equated with animal welfare, but this evidence is not applied to the different categories of animals or compared with what already exists. It is very welcome that the authors (INRAE) of the Hypotheses for the SNBC3 express doubts about the acceptability of hyperprolific sows and the possibility of keeping pigs in the open air. I would like to thank them for their courage in stating that goat rearing is not sustainable, given what is happening with the kids; the discreet wording being 'the difficulty of adding value to them' (in plain text: it's a scandal of distress). As for poultry, a reduction of just 20% is still incompatible with a transition to an acceptable level of welfare, which presupposes at the very least substantial reductions in stocking density and considerable areas of outdoor runs, as well as slow growth.

The hypotheses (INRAE) for the SNBC3 are based on early calving, reducing the size of animals, increasing the longevity of cows, precision feeding, additives (hypotheses and limits, see page 23) and very, very much on genetic selection to reduce enteric methane and indirect selection to reduce the Consumption Index (pigs and poultry). This is what is proposed under the term R&I. It's business as usual for researchers and technical institutes, and a lot of promises. The objective is to select animals for lower emissions. But we know that faced with other problems and impasses, geneticists are also promising to select: for adaptation to heatwaves, for resilience, for health (digestion, locomotor, udder, immunity, etc), for behaviour, and again and again for efficiency (eat less to produce more)... These are too many promises to believe in! And there's a key area missing from the list: extending the lactation period of dairy cows to produce fewer calves - at a time when early calving is being advocated to reduce the number of replacement animals! Please be consistent…

The conclusions of this INRAE research are a relapse into hard-line productivism: R&I know-how will have to be deployed to achieve the objective of reducing emissions by 40% *"while preserving livestock production as much as possible"*. And exports, since thanks to R&I, complete self-sufficiency could be exceeded by up to 20%. So reductions in emissions would be less dependent on changes in consumption. There would be no need for those involved in the animal sectors to get angry, and no

need for the government to get angry either, and R&I would support the business. And everyone would be happy? What's wrong with that?

Honni soit qui mal y pense. But aren't the authors simply promoting their own products when they recommend their 'as usual' R&I (animal nutrition and additives, reducing unproductive time for animals, genetic selection) for intensive, production-oriented livestock farming? And aren't they paving the way to justify public funding of research in support of intensification? So that the industry can promise 'BETTER' while ruling out 'LESS'? What if what the INRAE authors are saying is quite simply true? No social peace with the meat and milk lobby without *"preserving animal production as much as possible"*? No better world for animals and for a habitable planet…

INRAE: Assumptions for the SNBC3: Unitary reduction (% per kg of milk or meat) in direct emissions from the main livestock sectors. R&I, research and innovation effort. Table on page 24 of the document

	R&I-	R&I+	R&I+	R&I+	R&I+
	Baisse unitaire* ligne de base	Baisse unitaire* additifs ou alimentation multiphase	Baisse unitaire* conduite troupeau	Baisse unitaire sélection génétique	Total*** baisse unitaire émissions directes*
Lait (VL)	-15%	-25%	-5%	-10%	-32%
Viande (VA)	-3%	-20%	-5%	-5%	-24%
Viande bovine (VA+VL)**	-7%	-22%	-5%	-7%	-27%
Porc	-4%	-8%	0%	-6%	-11%
Poulet	-2%	-4%	0%	-10%	-11%
Œufs	-2%	-4%	0%	-10%	-11%

*1/2 potentiel techique. Emission par kg de produit : méthane entérique pour les bovins et petits ruminants; azote excrété pour les monogastriques

** Viande bovine issue à 35% de la filière lait

***L'additivité de ces trois options n'étant pas prouvée, la somme est réduite de 20%

4.3.2. Health, sobriety and Nutrinet

M Duru and P-M Aubert have compared future scenarios[50] which differ in terms of whether or not they take account of biodiversity and human health, in addition to GHG emissions. Agro-ecological practices, which favour biodiversity, present fewer health risks. As far as livestock farming is concerned, the strategy of precision farming is moving towards dehumanisation, while agro-ecological livestock farming is facing socio-technical barriers. Given that conventional "good agricultural practice" will not enable us to achieve the objective of reducing agricultural emissions by 50% by 2050, an examination of the various levers shows that the most powerful lever is the greening of the diet. In comparing the scenarios, it is those commissioned by the European Union (LTS Long Term Strategy for Europe) that take no account of biodiversity and health, nor of the link

[50] M Duru and P-M Aubert: Scénarios de systèmes alimentaires à l'horizon 2050 au niveau européen et français : quels éclairages pour les politiques publiques? 2021 (*Food system scenarios for 2050 at European and French level: what insights for public policy?)*

between production and consumption, but advocate technological solutions. This is also in line with the European Commission's approach to the livestock industry[51] , which reassures us that nowhere is there an objective to reduce livestock numbers. The Commission is walking on eggshells. And it accepts the omerta on the necessary reduction in livestock numbers.

The potential for reducing emissions through a plant-based diet is not really in doubt. What is in doubt is responsible behaviour. And that starts with the behaviour of decision-makers! Wouldn't sobriety be relevant to saving the planet's habitability? Are technological resources deployed by industry mor effective than sobriety? Actually sobriety comes up against socio-technical barriers, while so-called technological solutions are driven by the quest for profits (and subsidies) and by powerful lobby groups.

The conclusions of **the French Nutrinet-santé study** are, in the words of Duru and Aubert: "*The French Nutrinet-santé study shows, for example, that the diet of the fifth of people surveyed who eat the least meat (-50%) has better health indicators, emits half the greenhouse gases and requires half the surface area and 30% less energy than the fifth who eat the most (Kesse-Guyot et al., 2021)."* This is a given.

4.3.3. Sustainability and food-feed competition

According to the FAO, changes in human diet account for only 4% of the potential reduction in greenhouse gas emissions from livestock farming. The FAO expects consumption and production of animal products to increase by 20% by 2050. The 'ethical' argument in favour of this growth is based on Africa's needs, whereas the real 'driver' is the growing demand from emerging countries that are becoming solvent, so not from the poorest and hungriest, but from a population that is becoming more affluent.

There is an element of realism in these miserable 4% figures, but tragically, this 'realism' consists primarily of allowing the FAO itself to contribute to the slowdown in dietary changes by relaying the interests and profits of the world's animal industries, in the same way that others give in to the oil, car, agrochemical and plastics industries. Indeed, behind almost all the potential for reducing greenhouse gases highlighted in the FAO figure above (page 12) are massive and powerful economic interests of an industrial nature. The sector's growth is deliberate[52] . This is what is stated in the Global Agenda for Sustainable Livestock, a Multi-Stakeholder Partnership that includes the private sector, research and numerous NGOs, and whose secretariat is at the FAO.

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[51] Animal Production Civil Dialogue Group at the European Commission

[52] Global Agenda for Sustainable Livestock Production FAO 2016.
https://www.livestockdialogue.org/fileadmin/templates/res_livestock/docs/2016/Panama/FAO-AGAL_synthesis_Panama_Livestock_and_SDGs_FR.pdf
While MDG 12 suggests that there is an interest in reducing the production and consumption of animal proteins, the commentary on MDG 8 states: *"Livestock production accounts for up to 40 percent of agricultural GDP. It is one of the fastest growing economic sectors in developing countries (2.5% per year over the past two decades). Livestock production and merchandising account for 53% of agricultural GDP in industrialised countries (World Bank, 2009). Harnessing the economic benefits of an expanding livestock market can help support overall economic growth. Livestock farming is a sector where profit opportunities are considerable and often latent. Increasing labour productivity - currently marginal - in the livestock sector through training, technological improvement and innovation can lead to substantial and sustainable value creation in developing countries' livestock supply chains. Returns on investment in livestock employment are higher than average due to the sector's high growth and labour intensity, with more diverse recruitment, including of women. This is true not only for livestock in rural areas, but also for processing and marketing in urban areas."*
or about MDG 9: *"... with a higher growth rate than other agricultural activities, expected to reach 3 per cent per year over the coming decades, the processing of animal products is one of the most dynamic sub-sectors in emerging economies. ..."*

In fact, the European and French livestock industries are extremely concerned about anything that promotes a much more plant-based diet, even going so far as to try to ban the use of certain meat-related names for alternative products. Out of concern for the planet and humanity?

It will be interesting here **to examine in detail another nutritional and environmental assessment of foods of animal origin**[53] which appears to be relatively objective in a number of details while strongly defending animal-derived nutrients. But instead of concluding that "the production and consumption of animal products should be maintained but reduced", this publication broadly and vaguely concludes that "there are advantages and disadvantages, animal products have an important role to play, it just depends on where and how". This brings to mind the pesticide strategy that says 'the right dose at the right time'; the main thing is not to hinder production.

It would be much fairer to say that the impacts of livestock farming would become more acceptable if numbers and volumes fell considerably, as benefits such as biodiversity, landscapes, carbon storage and the absence of feed-food competition are directly conditional on a reduction in livestock numbers (all species taken together).

This is not to question the nutritional quality of foods of animal origin, both in terms of a balanced profile of amino acids and various micronutrients. However, **meat advocates can be criticised for presenting the useful composition of meat in isolation rather than comparing it with the equivalent potential of a combination of plant-based products.** Achieving a healthy diet that avoids certain specific deficiencies can go either way: a more or less radical plant-based priority, or include an animal-based component. In all cases the need to complete with plant diversity remains, as advocated by the "5 fruits and vegetables" initiative in the context of France's over-consumption of animal and ultra-processed products.

The publication cited[41] shows that, fortunately, the debate has gained in quality over the last 20 years. The health risks of animal products are explained and not disputed, with too much red meat, especially fried meat, and processed meat (especially pork) being blamed. It is also accepted that a much higher consumption of omega3 fatty acids from plants can compensate for the absence of animal sources (including oily fish); that certain micronutrients are not absent in plants, although they are less well absorbed (a complex issue); that dairy products do not appear to be essential and that the usual recommendations for calcium are not appropriate. Yet these are some of the same authors who, in another publication[54] (see above), crusade against drastically limiting the use of animals in the food system (including the principal author Frédéric Leroy, who was involved in the "Dublin Declaration"[55]). Remember that it is very easy to supplement our diet with certain micronutrients (e.g. vitamin B12 or calcium). What's more, animals in intensive farming are systematically supplemented, so why them and not us?

Let's add that a meta-analysis[56] suggests that poultry meat is not totally harmless, as people have always been led to believe, including in the PNNS, where poultry is bluntly excluded from the risk and moderation advice. Many studies have focused on red meat. But our aim here is not to bash

[53] Ty Beal et al: Friend or Foe? The role of Animal-Source Foods in Healthy and Environmentally Sustainable Diets. 2022

[54] F Leroy et al : Animal board invited review: Animal source foods in healthy, sustainable, and ethical diets - An argument against drastic limitation of livestock in the food system 2022

[55] Radio France 4 November 2024

[56] Prof Jean-Louis SCHLIENGER: Confirmed association between meat consumption (especially charcuterie) and the incidence of type 2 diabetes. October 2024 (website for health professionals only). When extended to include cold meats and poultry, the relative risk of higher consumption for type 2 diabetes becomes 1.1 (100g/day of red meat), 1.15 (50g/day of cold meats) and 1.08 (100g/day of poultry) respectively.

red meat in the name of climate or health, but to bring coherence and proportionality to an overall picture that also gives due weight to the emotions of animals. And when it comes to animal welfare, the mass of poultry is very, very badly placed. This is an argument in favour of beef.

Let's discuss the feed-food competition. In the European Union, 61% of cereals are used for animal feed. That's a lot, and it's impressive. It is therefore somewhat surprising that Anne Mottet et al[57] claim that 86% of the world's animal feed is not consumable by humans, and that soya meal accounts for only 4% of animal feed. This sounds reassuring to shoppers. But it's not. So we need to make an effort to understand the proportions and what they mean, and the article gives us the facts. According to FAO figures, in 2010 the world's livestock industry consumed 6 billion tonnes of dry matter (DM), 46% of which was grass and leaves and 19% crop residues (straw, maize cane, sugar cane heads). Only 14% of this is consumable by humans, including 13% of cereals, which nonetheless accounted for 32% of global cereal production in 2010. In grazing and mixed systems, ruminants eat 90% of the fodder (although this figure is far too high for European mixed crop-livestock systems!). In fattening feedlots, cereals account for 38% of DM in non-OECD countries and 72% in OECD countries, which shows where feed-food competition is at its worst, namely in the rich countries that can afford this enormous waste. As for industrial pigs and poultry, cereals account for >50% of their total feed and oilseed cakes for 9-25%. It's up to you to judge whether the feed-food competition ('only' 14%?) is real and worrying or not. In fact, you have to look at the arable land occupied: 40% is used to produce animal feed. Even if arable land today produces crops that cannot be consumed or are not consumed by humans, it could produce food for humans. The competition is real.

In fact, other figures are even more revealing: the quantity of food edible by humans per kg of protein produced by animals, without even taking soya into account! (not edible by humans in its 'feed' form!). For ruminants, it takes 5.9 kg of food edible by humans to produce 1 kg of protein, and for monogastric animals it takes 15.8 kg. For those who consume the most protein, i.e. cattle feedlots, it takes 44.3 kg in OECD countries and 37.1 kg in non-OECD countries. It is edifying to compare this incredible waste with the supposedly low GHG emissions from feedlots. For industrial poultry, this ranges from 13.8 kg to 20 kg of feed edible by humans for 1 kg of protein produced. And which systems use the least? Monogastric animals in backyard family systems, and ruminants in grazing systems! But there can't be many backyard monogastric animals, and the system can't be transposed to mass rearing; so we have to make do with very little, with very self-sufficient and economical systems.

Better still, the article provides us with a calculation that takes into account the quantity of protein consumable by humans included in the feed, in relation to the kg of protein produced by the animal. This figure is 0.1 kg for backyard monogastric animals (which obviously cannot be multiplied because they are fed on waste), and 2.9 to 5.2 kg for monogastric animals in an industrial system. Adding it all up, we learn that, all told, ruminants and monogastrics produce 41 Mt of animal protein while consuming 37 M t of protein that could be consumed by humans, so they would provide a net contribution of 4 M t. However, if we add soya cake, the protein deficit in animal production rises to 11 million tonnes of protein per year!

Soya meal (calculated separately above) is unique in that it is not edible by humans as such, but soya fields could produce food for humans instead of being used mainly for animal feed.

A table presented by Anne Mottet is instructive (see below). It shows the enormous superiority of grazing systems compared with feedlots in terms of feed-food competition. It is edifying to compare this with the table (page 12) showing the GHG emissions of the different systems. And even when grazing, non-OECD countries have less feed-feed competition than OECD countries (with their

[57] A Mottet et al: Livestock: On our plates or eating at our table? A new analysis of the feed/food debate. 2017

so-called 'performance' and 'efficiency'!). This confirms once again that the rich waste more than the poor, and if we want to combat waste, this is the place to do it.

Example: the food (in)efficiency of industrial systems. Source : **Too big to succeed ? Global demand and dairy mega-farms under the sustainability microscope**. Anne Mottet, IFAD

			FCR1	FCR2	FCR3	Protein FCR3
			Kg DM feed/ kg protein product[1]	Kg DM human edible[2] feed/ kg protein product[1]	Kg DM human-edible + soybean cakes[4]/kg protein product[1]	Kg protein from human-edible +soybean cakes[4]/kg protein product[1]
Non OCDE	Bovins	Au pâturage	195	1.6	1.9	0.3
		Mixtes	171	4.8	5.6	1
		Feedlots	99	37.1	39.6	4.8
OCDE	Bovins	Au pâturage	67	6.7	5.5	0.9
		Mixtes	53	6.4	7.6	1.2
		Feedlots	62	44.3	45.4	4.7
OCDE	Volaille	Industrielle	26	18.8	24.0	5.0
OCDE	Porcs	Industriels	27	19.1	23.9	4.6

Source: Mottet et al. (2017) Global Food Security

IFAD | FIDA

13

Overall, 40% of arable land is used to feed animals. If animal proteins are to increase, more land will be needed to produce them. Defenders of animal proteins put forward fallacious arguments. Supposedly, 14% of grassland could be converted into arable land, the rest is not convertible; but what about the massive release of carbon as a result of such grassland conversion? Crop yields and animal feed conversion rates would improve, but that's without taking into account the increasingly destructive vagaries of the weather, and even epizootic diseases. Livestock farming is said to contribute to crop productivity through livestock effluents and animal traction; in Europe, the contribution of nitrogen through effluents is estimated at 38%, and 61% in the Netherlands. This assertion is a deception, given that the nitrogen in effluent never comes from nowhere but comes mainly from mineral fertiliser and imported soya (both of which have major environmental impacts) and to a lesser extent from grass and legumes. It is indeed because of nitrogen pollution that the Netherlands is having to reduce its livestock numbers, which is greatly upsetting the animal feed industries, which is why the extreme right-wing is taking power and abandoning this policy.

But what is really happening with the co-products and by-products that are supposed to feed animals without competing with human food, and which, in many speeches, are supposed to solve the problem? Let's take a naive look. M Duru (page 7) tells us that monogastric animal feed today includes only 15% co-products. How can they be pulled out of a hat? Firstly, there is increasing pressure on by-products, particularly as a result of methanisation. So it's high time we looked at the usefulness, impact and sustainability of the main crops that supply these co-products. What is convincing for oils for human consumption is not necessarily so for biofuels. Industrial livestock farming should not be the additional outlet that determines the profitability of a main crop, which is often used for (questionable) industrial and energy purposes, and consumes (large quantities of) fertilisers and pesticides. And what about the production of sugar, beer, wine and glucose syrup (the source of pulp, spent grain, corn, marc and cane): are these the nutrients that mankind needs most? Should we develop them or put the brakes on? For some people, these industries are more a case of sustained marketing, driving desire or pleasure, which are very real but distinct from need. What

about industrial needs, bio-based plastics, etc.? In any case, co-products can be useful on a case-by-case basis, but do not exempt us from a critical analysis. It is incoherent to limit the percentage of maize in methanisers, but to allow anything else to happen, including the excess and waste of animal proteins. The essential transition of the food system concerns all production and practices. Pesticides in particular.

The COPRAME project[58] in the Grand Est region of France has been experimenting with co-products (pulp, spent grain, corn and liquid co-products) for dairy cows and young cattle: they enable more to be produced with less surface area and at lower cost, and highlight the absence of feed-food competition, short transport distances for regional products, and a slight reduction in methane emissions (uncertain) due to a reduction in cellulose, at the risk of creating health problems (acidosis, lameness). All this seems to tick a number of environmental boxes, except that these systems are fundamentally incompatible with animal welfare needs. There are definitely too many nutritionists fiddling with rations, even if they are unnatural, and not enough ethologists and naturalists to ensure that living things are respected.

In conclusion, claiming that only 14% of animal feed competes with human food is a way of minimising and hiding the unbearable scale of this competition.

4.4. What about the environmental impact of veal calves?

With **CAP'2ER**, IDELE (Institut de l'Elevage) has produced 13 fact-sheets on the environmental impact of different types of beef cattle farms, but none of them deals with veal calves.

As for dairy farms[59] , 26% of the environmental impact is allocated to meat. I have not found any information about calves born on the farm being taken into account in the impact assessment. The birth of non-renewal calves and the impacts they will have are not allocated to the farm of origin. Yet the sole purpose of these calves is milk production. So the impacts of dairy calves must be allocated to milk production. Furthermore, it is claimed that the way to reduce emissions would be to reduce the number of renewal animals and to reduce the unproductive time of these animals, i.e. to have them calve younger. In fact, it's the birth of all those dairy calves that's the problem. Let's break the omerta.

Once again, it appears that the carbon footprints of farms and sectors depend on the calculation conventions used.

CAP'2ER assesses a farm's feeding performance. As a result, the farms show an astonishing number of people being fed. On closer inspection, there are three possible indicators, so three possible indicators, not three combined and aggregated indicators. For animal proteins, the calculation is based (according to CEREOPA, 2013) on an average animal protein requirement of 22.5g/day/person. However, this estimate of requirements (which is acceptable) is 2 to 3 times lower than usual consumption in France. In other words, according to PERFALIM's calculations, current French livestock farming can feed 162 million people with animal protein, but there are only 68.5 million French people. Given our huge surplus of animal protein, it makes no sense to use the quantity of animal protein produced as an argument to enhance the environmental value of a farm. Let's be logical: let's divide total animal protein production by 2 to 3, to bring it into line with

[58] https://idele.fr/detail-article/coprame-les-coproduits-quoi-de-plus-local

[59] https://www.ferme-laitiere-bas-carbone.fr/medium/W1siZiIsIjIwMTgvMDYvMTMvMWptOW04OHN5bV9ndWlkZV9tX3Rob2RvbG9naXF1ZV9jYXAyZXIucGRmIl1d/guide-m-thodologique-cap2er.pdf?sha=b87e23d906901a87

estimated needs (bearing in mind that it is also possible to live healthily with even less or even zero dairy and meat products, but let's not go that far). It will be necessary to cross-reference useful quantitative production with qualitative, environmental and ethical criteria.

It has been difficult to find even a minimum of data on the environmental impact of veal calves. According to CAP'2ER, most of their greenhouse gas emissions are due to milk replacer, which accounts for 87%[60] . This feed is formulated in a variety of ways, depending on nutritional considerations (including low iron content) and the best price for raw materials on the market. The industrial process and transport consume energy. It's safe to assume that a calf that drinks its mother's milk while grazing next to her has a smaller environmental footprint, as all the industrial processes and various forms of transport become obsolete.

Let's look at a few general points. Everything that has been said about the environmental benefits of grassland obviously applies to grazing calves. Milk replacer is an unnatural food that deprives calves of the natural, healthy food their bodies are made for. It replaces with an industrial process what flows naturally from the mother's source. Next, let's denounce the greenwashing that tells us that veal is part of the circular economy because it consumes by-products. This is all the more delusional when we are talking about whey produced by cracking the milk of cows separated from their calves. This whey, made up of high-quality proteins that are perfectly useful for human consumption, has become a waste product to the point of being disposed for biogas production. We are swimming in excess animal proteins to the point of turning them into waste. But it gets even crazier. We are told that lacto-replacer can be made entirely from plant proteins, without milk, so that veal would no longer have to compete with human food[61] ! Because *'cow's milk is made for humans, not for calves'*. This could lead us into a philosophical debate about anthropocentrism or, more simply, about the fact that our biological culture is inadequate.

These few observations show us once again the extent to which we must be wary of 'carbon' and 'co-product' logics when they are detached from biological reference points, the sensitivity of living beings and natural cycles.

The logic of an economic added value for human errors remains in error.

4.5. In France, the future Low Carbon Strategy 3

4.5.1. What the SNBC3 proposes for livestock farming

Another **look at the National Low Carbon Strategy 3, which has entered a (bizarre) public consultation lasting 6 weeks until 15 December 2024**. The document sets out the main assumptions of a provisional reference scenario. We have already studied INRAE's considerations from a 2050 perspective. Now we are looking at 2030.

Between 2021 and 2030, agricultural emissions would fall from 83 to 69 $MtCO_2eq$. This 14 Mt drop breaks down as follows: - 3Mt from reduced emissions from crops (fertilisers, etc.), - 6Mt from livestock (enteric fermentation and effluents), - 1Mt from the decarbonisation of machinery and infrastructure (tractors, greenhouses), and - 4Mt from reduced emissions from farmland and grassland (less turning over, agroforestry, cover crops). Some targets are quantified, e.g. achieving

[60] RenouVEAU Webinar slide 116

[61] Source: a nutritionist working for Roquette

21% organic farming by 2030 and 2 M ha of legumes (doubling by 2020). The National Strategic Plan (NSP, CAP-related) will be assessed to determine whether it meets these targets or whether changes are necessary. Support for anaerobic digestion will make the most of existing livestock effluents, reduce methane emissions and improve nitrogen management. The reduction of emissions linked to the production and use of mineral fertilisers will be supported, as will digitalisation and access to the low-carbon label and payments for environmental services. The development of new low-carbon label methods to encourage changes in production methods will also be supported. Indeed, the desire to rework the NSP and low-carbon labels is highly commendable, as are all the measures designed to reduce pressure on the environment and resources. So far, this seems to be going in the right direction.

But **what do the 'first broad guidelines' say about livestock farming?** Warning: we're treading on thin ice, given the anger of the farming unions! So the project attempts to square the circle with the hypothesis of *"slowing down the rate of decapitalisation"* and *"putting livestock farming back at the heart of the farming system and maximising its ecosystem benefits by promoting local, sustainable and grazing models"*. Similarly, the aim is to maintain or restore food sovereignty while moving towards compliance with the recommendations of the PNNS (National Nutrition and Health Plan). The projected evolution of livestock numbers is not a target, but a provisional assumption based on current trends and short-term forecasts (it's hot). For 2030/2020, this trend would be as follows

- declines: -12% for cattle; -10% for pigs; stable for poultry.
- ⇨ the proportion of dairy cattle farms on pasture would rise from 28% to 45%;
  ⇨ label and organic chickens rise from 32% to 39%.
  ⇨ label and organic pigs up from 4% to 7%
- Increased protein self-sufficiency (more pasture, protein crops and fodder legumes), reducing soya imports by 50%.
- adapting feed and health management and improving animal performance through genetic selection; in dairy cattle *"this has resulted in an increase in the longevity of animals and a reduction in the age of first calving".*
- As for enteric fermentation, for 25% of cattle the ration is adjusted:
  - 14% for adding 3.5% lipids to the ration, e.g. by adding linseed.
- as for effluents: widespread covering of slurry pits, improved spreading practices and methanisation of effluents: 20% by 2030.

The description of the main guidelines for implementing this scenario does not say much more, except to reiterate the need to regain our sovereignty over livestock farming, to preserve permanent grasslands, and to give priority to the consumption of local, sustainable meat. The development of agro-ecological practices would encourage the extensification of livestock farming, while at the same time the transfer of knowledge would aim to reduce the animals' unproductive periods, increase their longevity and feed efficiency, particularly with regard to forage diversity*, "and improve their performance through genetic selection"*. This is a tightrope.

A particularly ambiguous and ambivalent paragraph reads as follows: *"The most efficient mixed crop-livestock systems in terms of greenhouse gas emissions will be encouraged, in particular through the development of diagnostics and support for the low-carbon label (LBC)".*

This is reminiscent of what we see in the Grand Est region: such talk means intensive livestock farming and an increase in the number of dairy cows on farms.

The SNBC3 also talks about **changing diets**. The move towards the PNNS benchmarks should be accompanied by a sustained demand for local, seasonal, quality products, with a reduction in wastage. The SNANC (National Strategy for Food, Nutrition and Climate) currently being drawn up

should promote all aspects of sustainability. Diversification of protein sources and limiting consumption of meat and charcuterie are mentioned. The fight against waste is also mentioned.

As for energy consumption on farms, it is recommended to move away from fossil fuels for farm machinery, as well as using less energy-intensive cultivation methods, improving the energy efficiency of equipment, and using low-carbon energies (geothermal energy, waste heat, etc.), particularly for greenhouses.

There remains the thorny issue of **bioenergy**. The use of livestock effluent for methanisation should reach 20% by 2030. This is supposed to help reduce greenhouse gas emissions from livestock farming. Priority will be given to CIVE and livestock manure as feedstock for methanisation plants.

As for the **storage of carbon in the soil and biomass**, *"the turning over of grassland is contained"*.

So far, the SNBC has limited itself to targets for 2030. The challenges facing the agricultural sector in 2050 are dealt with quickly, by repeating the same means as before; nothing new under the sun. However, there is a focus on **a key assumption of the SNBC3: the evolution of red meat consumption**. This means squaring the circles (plural): reducing red meat consumption in line with the PNNS and controlling the phenomenon of decapitalisation of livestock in order to avoid an increase in imports...

We have already questioned this focus on red meat. Monogastric animals deserve a much more critical look in the name of animal welfare, biodiversity, feed-food competition and crops that consume pesticides and fertilisers.

4.5.2. Comments on the SNBC3 proposals for livestock farming

If we have confirmed above that a reduction in livestock numbers is necessary for reasons of climate, biodiversity and feed-food competition, then the first key question is: do we dare advocate and implement such a reduction? How can a reduction be managed, given that animal protein consumption is falling only very timidly and is increasing at global level in the absence of responsible and coherent (and multilateral) public policies?

What the draft SNBC3 says is one thing. **The orientations of the SNBC3, without being rash, seem to go in the right direction**, rather rational and objective in the general principles, and apparently rather open on the scientific observations. In a way, the SNBC3 proposes the bare minimum.

But there is another government document with a completely different tone. It **is the Government's Plan to regain our food sovereignty in livestock farming**:

> It is a plea against the reduction in livestock numbers and against those who advocate it. It's a rather curious document, reflecting a certain panic among those involved in livestock farming, caught in a vice between economic pressures and social criticism. In fact, the Plan offers no constructive response to either economic pressures or social criticism, but reproduces a stereotyped discourse based on 'image', emotion and (French and rural) identity. The Confédération paysanne (French farmers' confederation) puts it very well in an initial analysis: *"So it's not a question of changing livestock farming, but of changing the perception of livestock farming".* The Plan promises to spread the budget around. It's safe to assume that all the talk about *the "attractiveness of the farming profession"* has the underlying aim of maintaining slaughtering and processing facilities whose profitability is faltering and which have been designed for economies of scale, but not for real nutritional needs or for farming with a human face. And let's not forget the huge

economic stakes involved, particularly for cooperatives and manufacturers, in the sale of fertilisers and pesticides used on crops intended for animal feed, even if it is via co-products, and the powerful animal feed industry. So let's dare to say something that is not politically correct: there is no need to promote the profession of conventional livestock farmer. So much the better if young people are wise enough not to want to go into it. It's a violent profession, particularly in terms of the deprivation inflicted on the animals. Digitalization is being touted in the name of competitiveness, and clicking on software still has its appeal. Moreover, this Plan betrays itself: it also aims to support exports. The relocation of livestock farming is just a façade.

The fact remains that the second key question is still very important: how do we deal with imports? Apart from the mention of mirror measures (which are consensual, but far from a given) and the incantation of competitiveness, the Plan has nothing to propose. This is not surprising. The ongoing disruption is global, it is both economic and climatic, and the two are linked. Unfair competition and an unliveable planet are two sides of the same coin. And the unfair competition is essentially European, with the majority of imports coming from the EU.

Will the serious side of an SNBC3 be able to contain the propaganda of the Plan to Regain Sovereignty?

As for the SNBC3 up to 2030, a number of comments and questions (some of which will be included in the final conclusions) are needed to remove some of the vagueness:

A decline in livestock numbers :

- The (trend) decline of 12% in the cattle herd needs to be clarified: how can the cattle herd be restructured so that it makes sense for the animals, for the farmers and for the environment as a whole? Indeed, it is not the same thing to reduce the number of cows and maintain exports of calves and grazers for fattening elsewhere (which causes emissions) and meat imports, or to reduce the number of cows and move away from an export economy, while relocating fattening (grass-fed and extensive), which causes emissions but also co-benefits. The quantified objectives and environmental results are not the same.
- the reduction in pig numbers must be accelerated, for reasons of pollution, feed-food competition, major animal distress, and the impact on human health of the consumption of charcuterie.
- a stability target for poultry is unacceptable, for reasons of feed-food competition, biodiversity and climate, and major animal distress. High poultry consumption is in itself a waste of food and must be combated as such.

The figures put forward to boost sustainability are highly welcome in principle, but do they perhaps suggest a reality that is more beautiful than it is? We are surfing on ignorance:

- For a start, it's interesting to know that 28% of dairy cows are predominantly grazed, whereas elsewhere we are told that 90% of French cows graze. Here again, to be really good, you'd have to target a drop in total milk production while sharply increasing the proportion of milk produced on grass (which is planned), while reducing the number of dairy calves being born and increasing fattening on grass... to build a new balance that's positive overall.
- As for chickens, to show a 32% share for labels and organics, it's a safe bet that 'certified' chickens are included in the figure, but certified chickens are kept at very high density in confinement, even if their growth rate slows down slightly. Hence the fear that the planned increase will involve certified chickens.
- Red label (Label rouge) pork is worthless, it's conventional pork that has 20% more surface area for fattening - it's ridiculous. It's with free-range and organic pork that things are getting serious,

but there are very few of them. It's demanding to raise pigs outdoors, and these systems are suited to small farms. Also, for reasons of feed-food competition and the environment/climate, it is desirable to feed the pigs mainly with by-products. These conditions mean that only small herds are sustainable. What's more, charcuterie is very bad for public health. Proposing a (trend) reduction of just 10% is tantamount to preferring to save the industry's industrial tools and export to taking action for the climate and public health. Not to mention the unbearable animal suffering in conventional pig farms.

Of the three groups, cattle, poultry and pigs, it is cattle for which it seems most affordable to achieve a very high level of animal welfare.

- **Poultry production has reached such a level of industrialisation (for breeding, hatcheries, large numbers and slaughter) that it seems almost impossible to get out of it at the moment. Admittedly, the differences between conventional rearing and red label or organic rearing are enormous and justify the development of the latter, and in particular small free-range flocks with on-farm slaughtering. But a chick never grows up with an adult animal of its own species by its side, never knows its mother. Large numbers have nothing to do with natural social structures. The last transport is extremely brutal. There are no more individuals, just kilos of live weight per square metre.**

- **Pigs have behavioural, emotional and cognitive needs that are impossible to satisfy on intensive, mass production farms, even with a few enrichments, even with a few extra square metres. Admittedly, the differences between minimum standards and organic standards are very significant. But the true welfare of free-range pigs is possible; it is very demanding and extremely rare. Such an ideal system will never be able to produce mass numbers, for environmental and cost reasons.**

On the other hand, it is possible to rear cattle in good welfare conditions, with wide access to pasture, in herds where social links are respected as much as possible, with slaughter on the farm (or nearby with the farmer present), and with a good human-animal relationship. This is a long way from being achieved for the majority of cattle, but it is a realistic utopia, and part of a coherent and desirable agro-ecological transition.

It is only from this perspective that it is legitimate to promote the profession of livestock farmer.

What is true for animal welfare is also true for biodiversity. On a minimum open-air run, monogastric animals tend to wipe out plants and insects. This requires changing plots of land, it invites to include pigs in crop rotations, or targeting very low stocking rates on less fertile land, and so on. But integration into the agro-ecosystem is possible. To fulfil their ecosystem role effectively, the number and density of monogastric livestock must be low.

Large herbivores are more easily compatible with good biodiversity, provided that stocking levels are low and some areas are excluded from grazing.

In conclusion, the distinction between cattle and monogastric animals needs to be reviewed. Monogastric livestock should be reduced much more drastically than cattle.

Let's continue to look at the SNBC3 proposal.

It calls for greater protein autonomy in order to reduce soya imports by 50%. France imports 1.35 million hectares of soya.[62] The objective is a good one, but the protein plans should not become yet another support for industrial livestock farming. The proportion of arable crops used for livestock production must decrease as livestock numbers fall. **It is totally illogical to limit the proportion of main crops for anaerobic digestion, but to give unrestricted access to main crops for animal feed in a context of net over-consumption of animal proteins, including dairy proteins. The fight against food waste must include the fight against the over-consumption of animal proteins.**

Adapting feed and increasing animal performance merely perpetuates what has been done for as long as modern zootechnics has existed: fiddling with rations, inventing additives to alleviate the resulting health problems, stimulating growth and productivity, and pushing animals to the limit. It is totally unacceptable that intensification should give points towards a carbon label or other carbon financing. **Carbon points must be earned by reducing the number of animals.**

As for enteric fermentation, we have seen that the various feed additives are a big business. Giving them to all cattle is expensive and risky. The 'blue-white-heart' players have skilfully manipulated the situation to gain recognition as health heroes and get paid in the name of the climate to pour flax into troughs (which INRAE considers unrealistic on a French scale). While there are more than enough omega3 vegetable oils for human consumption and enough omega3-generating grassland in France's meadows and pastures, animals still need access to them, including during finishing. Finishing in confinement, as is widely the practice, removes the good omega3 content from the meat.

As for effluent management, will public money have to finance pit covers and drag hose or injection slurry spreaders again and again? This is the unacceptable polluter-pays approach. Industrial livestock farming should assume its costs and all its externalities and pass them on, in full, in prices. We must put an end to the distortion of competition to the detriment of extensive systems.

One worrying term is mixed farming. In ecological circles, mixed farming and livestock rearing have a good reputation, and all too often they receive all blessings without prior examination. Not everyone gives the same meaning to the term. Mixed farming includes confined factory farms, dairy cows with no grazing, hyper-intensive fattening of young cattle, and a circular economy image because it makes use of industrial by-products such as draff and pulp - by-products that could find other uses.

In conclusion, the guidelines and measures proposed for the SNBC3 up to 2030 are, on the whole, welcome, but very fragile. There is certainly potential for a transition towards environmental and social sustainability and animal welfare, but these statements may also be directed towards maintaining and exacerbating the systemic waste associated with the overproduction of milk and meat, to the great detriment of the environment.

It's time to talk about **the industry's main argument, which is that imports are on the increase**. This is a problem, even if we shouldn't exaggerate it, because Europe and France export a lot. Clearly, imports can undermine efforts that could be made in France. But unfortunately, with a few exceptions (including red label chicken), these efforts are not being made. It makes little sense to talk

[62] Solagro: La face cachée de nos consommations. 2020 *(The hidden face of our consumption)*

about such strict standards when, in Europe, animals weighing up to 700kg are fattened up in pens where each animal has (at best?) 4 m². In France, the more recent pens are straw-bedded, whereas in Germany, Ireland, Poland and Italy, they are more often on slatted floors. There's a lot of talk about Mercosur, but most beef imports come from the EU. When it comes to distorting competition, Europe is very good at it, despite all the talk of the so-called 'level playing field' ‘justifying’ the unleashing of competition and pressure on prices and production costs.

Unfortunately, by shielding their theories from real impacts, economists have succeeded in making people believe in globalisation based on so-called 'competitiveness', and this globalisation has got out of hand. The damage has been done.

If the resources, including R&I, that are invested in 'competitiveness' were invested in fair trade, if the objective were to meet real needs instead of pushing for 'growth', then we would be further ahead.

5. How can we transform the dairy system to improve the welfare of calves, within the framework of LESS and BETTER?

5.1. Psycho-technical and economic obstacles in France and the EU

The psychological obstacles encountered include a certain mental rigidity on the part of the players, an inability to talk to each other outside the professional circle, the habit of being surrounded by doctrines and lies, submission to the so-called 'must-haves' that are taught and passed on, but also repeated disappointment and discouragement in the face of pitiless economic contexts that mean that openness and goodwill get the farmer nowhere. Initiatives such as the LIT Ouesterel (https://www.assolitouesterel.org/) and the co-construction of INRAE's Coccinelle project are successfully promoting societal dialogue and listening. Are the barriers breaking down? Have we reached the point in history where better knowledge of animals' needs can finally! turn current practices upside down? Some training courses, such as the Care4dairy webinars on calf rearing in March 2024 or COLOCAVO on group housing for calves in June 2025, give us hope of this; as do the recent (March 2025)[63] factsheets on animal welfare produced by IDELE with LIT Ouesterel.

It is all the more surprising that the professional organisations Interbev and the Syndicat français de la Vitellerie seem to ignore, or at least interpret differently, the work and pleas of their own Institut Technique de l'Elevage (IDELE). Indeed, when they formulate their contributions to the European Commission's consultation[64] on the revision of animal welfare legislation, they defend individual housing for calves and state their opposition to any change in existing standards, whereas, clearly, these standards are completely outdated.

So the declared representatives of the livestock industry are mired in failings and contradictions. This is all the more astonishing given that research into livestock farming practices that claims to be 'innovative' generally begins with a survey to find farmers who are already practising these 'innovative' solutions (i.e. different from the dominant teaching). This is the case for the rearing of calves by nurses or by the mothers, for the rearing of small calves in collective housing, or for the lengthening of lactations.

Farmers and livestock technicians have been taught, in the manner of a mental vaccine, that the only valid arguments are the reduction of production costs, hence competitiveness, hence zootechnical performance, and the reduction and simplification of work while increasing production. Animal welfare is then seen as a matter of health and Average Daily Weight Gain (ADWG), and as such is in the economic interests of farmers. The LIT Ouesterel is attempting to understand the economic and environmental impact of animal welfare and thus not upset the farming sector. Compared to the importance given to digestive and respiratory infections and to the Average Daily Gain (ADG) of calves, which remains the main argument[65] , the emotions of animals are ignored. A better human-animal relationship is also presented as an asset in terms of productivity (and so much the better...). However, when rearing conditions such as limited floor space (making it difficult to rest comfortably), discomfort (slatted floors), an unnatural diet (lack of roughage), social stress, etc., have

[63] https://idele.fr/detail-article/multibov

[64] https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/14671-Bien-etre-de-certains-animaux-delevage-modernisation-de-la-legislation-de-lUE_fr

[65] Fiche « Elever les veaux avec les vaches. Quelles solutions choisir en fonction des impacts sur le bien-être des animaux et le travail de l'éleveur ? » IDELE, March 2025 *(Fact sheet: 'Rearing calves with cows. Which solutions should be chosen based on their impact on animal welfare and the farmer's work?')*

an impact on weight gain, then the system is deeply mired in animal suffering, and a gimmick that stimulates growth is not going to exonerate it. Well-being includes behavioural freedom.

An analysis of zootechnical vocabulary reveals yet another fundamental problem between the industry and society. The language used by technicians maintains distance and neutrality: *"the social development of young* [calves] *is essential for their future career"*, group housing *"stimulates the calf's immunity"* and *"can reduce labour"*. *Stress"* is still the magic word that gets around more evocative terms such as "sad", "desperate not to find an udder to suckle", "not feeling well", "abandoned", "emotionally deprived", "starving", and so on. It's not right to say or even think that "a cow loves its calf", whereas no one is shocked to hear that "a dog loves its human". It's about time we broke the straitjacket of these old-fashioned taboos that deny emotions. If today economic performance is the only language that speaks to the majority of farmers, it's because the farming consultancy wanted it that way. Is the 'market' to blame? It's too easy to shift the blame onto 'the market'.

When it comes to calves, however, there is another way of interpreting things, at least for some breeders, those who are heartbroken to see their little male calves go, suspecting (without really wanting to think about it) the hell that awaits them. Farmers who have learnt to be tough, but prefer not to be. Those who would be relieved if they were allowed to be sentimental. And who would be happy to see cows maternally raise their little calves, without being obliged to take them away. Provided we can avoid the humiliating slaps and destructive blows dealt out by an economic system that is perfectly cynical and brutal towards animals and people.

In the meantime, the fate of calves (like that of cull cows) is the dark side of dairy farming. But we live in **a dairy civilisation**. Milk and cows are part of our rural traditions and our roots, going back to times not so long ago when daily life was much harder for humans and animals alike, when God gave man nature to subdue and exploit, when man was considered infinitely superior to animals, when milk saved us from hunger. **It is therefore essential to open up a way out from the top**, leading to greater happiness and satisfaction for producers, and greater shared responsibility for others.

But the way out **needs political decisions**. And these are misled by the rhetoric of the dairy system. It's a globalised industry and system (from the capitalist West) whose advertising resources know no bounds.

As for the **technical obstacles**, they primarily concern the practices and resources of dairy farms that don't keep calves because they don't have the equipment, the human resources or the desire to look after them. It also depends on the building and the land, whether or not there is housing and grassland available, suitable for calves.

There is also the technical supervision that focuses on milk quality, and fears on this subject that are a priori unjustified when it comes to keeping calves with their mothers or extended lactations. Milk control doesn't care about calves. On the other hand, there are an incredible number of nutritionists who study, measure, weigh and formulate anything and everything, no matter how unnatural, as long as it is profitable for someone, but who don't give a damn about calves.

There are **economic barriers** at every level**.** For economic reasons, most dairy farms prefer to concentrate on cows and have more cows to sell more milk, rather than sell meat from animals, especially males. The better the milk price, the more cows they want to have and the less room there is for young animals. It is more attractive to sell milk than to feed it to calves, except in certain specific contexts such as direct sales (see below). The better the milk price, the greater the loss of income if calves are fed milk.

Livestock transporters are defending their profession; in the EU, 1.4 million small calves a year are transported across borders, including 580,000 a year for more than 8 hours. This profession should largely disappear, because these transports are incompatible with animal welfare (in addition to generating greenhouse gases and a huge waste of material). It would be unfortunate if Europe were to fund the upgrading of lorries for the sole purpose of perpetuating these absurd transports of calves to fattening plants, the vast majority of which are seriously incompatible with the calves' needs. It would be far better to finance farms to keep calves on site, in good conditions. On the other hand, the need for on-farm slaughtering would provide a huge number of jobs, provided that the search for volumes and economies of scale were combined with the re-humanisation of livestock farming.

Industrial processing facilities (dairies, slaughterhouses, agri-food industries) rule the roost. Credible and transparent CSR approaches are needed. However, growth in animal proteins - milk and meat - is incompatible with sustainability. We need to relocate and support small businesses rather than powerful corporations and multinationals.

The intensive fattening of veal calves takes place almost exclusively **on an integrated basis**, and it is the **Dutch feed manufacturers** Denkavit and Van Drie that are establishing themselves across Europe. The standard fattening model is abysmal, even if its advocates boast about the progress made in giving calves light and proper ventilation[66,67] , (just like the 'Kontrollgemeinschaft Deutsches Kalbfleisch' system in Germany[68] which has the merit of transparency) ; it maintains individual 'baby-boxes', discomfort and cramped conditions, unnatural feeding, and all this with shameless doublespeak.

And **supermarkets**, with their price wars, mistreatment of suppliers and promotion of a food model that generates non-communicable diseases (the main externalized cost of our food production!), prefer to sell harmful volumes rather than inform their customers about ethical food practices.

5.2. Improving the welfare of all dairy calves

The following is a list of the main principles that need to be improved. Most of them apply equally to veal calves and replacement calves. The proposed improvements are in line with EFSA recommendations. They are in addition to the usual obvious ones, such as colostrum intake, cleanliness, fresh outside air or very good ventilation, absence of draughts, availability of fresh water, feed at the right temperature, cleaning of feeding equipment, any vaccinations of the mother and calf, etc.

5.2.1 Abandoning the objective of clear meat and paying for colour

This will be a major step forward, paving the way for healthy, physiological calf feeding and, in particular, the provision of unlimited hay[69] . The 'One Health' principle demands that we take this step if we are to retain any credibility.

[66] There is no shortage of examples, such as "le veau de nos éleveurs" *(our farmers' calves)* where there is a lot of talk about welfare, but you can clearly see the cramped pens on slatted floors. https://www.youtube.com/watch?v=fCtyt2GIpHI The discourse is perfectly stereotyped.

[67] https://bravoleveau.com/production-et-systemes-delevage/ recorded on 16 November 2024

[68] German veal control system https://www.deutsches-kalbfleisch.de/landwirte/ reported on 15 November 2024

[69] EFSA recommends that calves be fed hay, which runs counter to the production of so-called white veal. It is regrettable that EFSA does not seem to have had the courage to come out more explicitly in favour of

In this way, grazing will also be made possible for veal calves.

5.2.2 Put an end to any period of isolation at the start of life and house them in groups

EFSA recommends (as a minimum requirement!) leaving calves with their mothers for around 24 hours and then housing them with another calf. According to EFSA, calves should be housed in pairs or in small groups (2 to 7 animals) in the first week of life, and then left in stable groups. This greatly improves welfare without increasing health problems.

5.2.3 Providing sufficient space for playing, jumping and galloping

The EFSA concludes that an individually housed calf needs around 30m² to express the locomotor activity of play, and in a group this would be at least 20m² per calf. " *Less preferable from an animal welfare point of view, but still allowing a relaxed lying position and increased activity* [compared to the current standard of 1.8m²] and *some degree of play behaviour, 3m² may be suggested as a minimum standard.*" (Summary). There is always a trade-off.

A larger space generates less respiratory disease.

Pasture offers optimal space. An exercise area may be advantageous.

5.2.4 Providing comfortable, clean, dry bedding

Slatted floors should be abandoned. Calves must have a deformable, insulating and dry surface on which to lie down, as well as a non-slippery, non-injurious surface on which to walk, run and jump normally.

5.2.5 Satisfying the need to suckle, increasing the number of meals and the total quantity

The calf should drink from a teat, and a teat should be made available beyond the actual drinking time. The physiological position is with the head up, as suckling a cow. The duration and frequency of feedings should be increased. An automatic feeder is preferable for this (avoiding harmful competition).

EFSA recommends feeding 20% of the weight per day, at least until the calf is 4 weeks old. This is much more than the usual rations.

5.2.6 Increase the amount of fibre, preferably with hay

EFSA (under 3.16.4.2.) recommends 166 kg of NDF[70] at 166 kg up to 6 months of age, in long form, to allow chewing and handling, which is an essential need, and to ruminate for a normal length of time as a calf not subject to a fibre restriction does. This new recommendation of 166kg is > 5 times higher than usual practice (average of 1kg/day instead of 0.19kg). Straw alone is not suitable, nor is maize silage; hay is recommended.

5.2.7 Leaving calves where they were born, abandoning transport and mixing

The long transport of calves is an unacceptable red line.

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abandoning the production of light-coloured veal, even though it recommends avoiding a haemoglobin level of less than 5.3mmol/L (the current regulatory limit is 4.5mmol/L). In addition, it recommends looking for non-invasive methods of assessing the level of anaemia in calves, although measuring haemoglobin levels is completely unnecessary as long as calves are given enough hay (and therefore iron). We can assume that scientists consider the industry's resistance (led by France) to abandoning the absurdity of the white calf to be insurmountable ? That would be an intolerable concession to stupidity.

[70] an assessment of total fibres, i.e. cellulose, hemicellulose, lignin, tannins, silica and cutins.

No farmer should accept that his animals should be sent for fattening under the current standard conditions in France or for export.

Such transport and mixing of animals requires systematic antibiotic treatment.

Calves also need to remain in stable groups, because of the bonds that form between them, and to limit the spread of infections.

Once the calves remain on the farm where they were born, the best solutions for their welfare can gradually be applied as long as they are economically viable: rearing them under nurse cows and, ideally and in the longer term, by the dam.

5.2.8 Raising calves with nurse cows

There has been a great deal of experience with such systems, with two or three calves allocated to a nurse cow. This system allows the calves to benefit from the presence of adult animals and to graze with them. It is often the calves that are bred for renewal that benefit from this practice, which is very beneficial for the health and growth of the calves. It should therefore be extended to veal calves. However, this system does not put an end to taking a calf from its mother. And a nurse cow is not the same as a mother; she does not lick her adopted calves. Some farms allocate the role of nurse cow by alternating between cows. The role of nurse can make it possible to postpone the culling of the cow.

The nurse system should be seen as a transition towards keeping the calf with its mother.

5.2.9 Leaving the calf with its mother

This system is by far the best for the well-being of the calf and the cow. The EFSA recommends it: "*in future, calves should have contact with the mother throughout the period before weaning".*

The variants of such a system are described below. This is a particular challenge. The main problem is the timing and manner of any subsequent separation.

This practice has always existed, but in the current context it is a major innovation.

5.2.10. Extending lactations in dairy cows

Longer lactations mean fewer calves are born. The ultimate aim should be to extend lactations by several years.

In this way, each calf born will have a high value, and it will be possible to devote the necessary resources to its welfare. There will be fewer animals, but each one will be able either to join the herd (dairy), or to be fattened to a high weight in good conditions, instead of being killed young.

This also meets the 'carbon' logic of reducing the number of unproductive animals.

5.3. Focus on rearing dairy calves with the mother or a nurse

5.3.1 The weight of words: a cow or the mother?

Let's start by **looking at a few nuances of vocabulary, to avoid confusion**. What do we call a dairy system that leaves the dairy calf with its mother? The synthetic English term, widely used in scientific publications, is **"cow-calf-contact"** with the customary abbreviation **CCC**. This term covers rearing with the calf's mother – called 'dam' – and rearing with nurse cows, and says nothing about the duration of contact, which may be very short.

In Switzerland, there has been some development of both approaches, particularly under the guidance of FIBL[71] , which uses more precise terms, in German "Mutter- und ammengebundene Kälberaufzucht in der Milchviehhaltung" (literally: Rearing calves attached to a mother and a nurse in dairy farming). In English, FIBL translates as 'Mother-bonded and fostered Calf Rearing'. The difference with CCC is evocative. "Gebunden" and "bonded" refer to the bond between the cow and her calf and therefore open up to the whole affective, emotional dimension. "Contact' refers more to a supposedly neutral science that counts affiliative behaviours such as bonding or grooming per unit of time. Contact' can be limited to a short period of time during the day.

It should therefore be noted that general terms such as 'cow-calf-contact' (CCC) encompass extremely varied practices of very unequal interest.

But this does not prevent scientific conclusions on the subject from coming together.

It should also be noted that what is known as a 'vache allaitante' (suckler cow) in France is known as a 'Mutterkuh' (mother cow) in Switzerland, and refers only to unmilked beef cows. While the French term 'allaitant' focuses on feeding, the German term emphasises the broader role of the 'mother' cow.

As far as dairy cows are concerned, the Swiss association Mutter-Kalb-Haltung (Muka, mother-calf rearing) stresses the difference between "rearing calves with a cow" (which can be either the dam or the nurse) and "rearing calves with the mother". So Muka is not rearing calves with a nurse (unless the nurse is suckling her own calf) but with the real mother for 3 to 10 months.

When applied to dairy calves, the French translation of the FIBL terms is problematic: "Elevage des veaux sous la mère ou avec une nourrice en production laitière". The use of these terms in France is rather awkward because **in France the term "veau sous la mère" means something else and is also misleading** (see also page 10). In France, veal "sous la mère" is *a traditional product specific to south-western France. What makes it special is its feed! In fact, "Veal under the mother" is fed exclusively* [emphasis mine] *on milk suckled from its mother's udder twice a day. ... ... The fact that veal is fed exclusively on milk gives the meat a light colour and great tenderness, much sought-after by the finest connoisseurs. Tasting Label Rouge Veal Sous La Mère is a real feast for the taste buds! Its exceptionally delicate, melting flavour comes from the noble fats in the mother's milk, which are deposited between the muscle fibres and are known as "marbling". When cooked, this fat gives this veal its incomparable flavour. The quality of the meat is due to the unequalled virtues of the natural milk suckled from the cow's udder.* [72] It's important to understand that this is not a dairy calf, but a meat-breed calf, so its mother is not milked, but grazes. However, this calf is forbidden to go out to pasture with its mother because, if it ate grass or hay, it would lose its pale, anaemic flesh and put on weight less quickly. So these calves are allowed to suckle their mothers for around 10 minutes each morning and evening, and when they are not suckling they are kept in a small (but straw-covered) pen in the cowshed. This enables a number of suckler cow farmers (2,600 according to the website cited above), whose economic difficulties are well known, to obtain a premium for a production process that is *"highly technical"*, unnatural and completely absurd. But labelled (Label rouge) and subsidised by coupled aid! Now, the consumer who buys is convinced that this *"veal* [known as] *sous la mère* [under the mother]" is like the calves he sees frolicking in the meadows with the cows (calves intended to be sold as grazers) - which is not at all the case. So the consumer is being misled. To avoid creating even more confusion, France should find a name other than "veaux sous la mère" for dairy calves genuinely reared by their mothers - a rare, remarkable, ethical practice with a promising future.

[71] https://www.fibl.org/fileadmin/documents/shop/2520-veaux-sous-la-mere.pdf Brochure available to download in German, French, English, Italian and Polish. Version 2023

[72] https://www.civo-vslm.fr/quest-ce-que-le-vslm.html raised on 10 November 2024

The rearing of calves with nurse cows will also be included in this chapter, given that the approaches are similar and that nurse cows and contact with the mother are often tried out together.
However, it should be stressed that the two approaches are not equivalent. The nurse cow meets a certain number of the calf's identified needs (frequent suckling and social contact) and this is already very significant progress. But it does not re-establish the maternal bond in all its biological and emotional value, either for the calf or for the cow.
The nurse cow is a relevant step forward, which prepares us to go further at our own pace, and that will take as long as it takes.

5.3.2. Awareness and major challenges

It is becoming increasingly clear that **society's view of dairy farming is** increasingly attentive to and affected by the separation of calves from their mothers. It is undoubtedly in the industry's interest to look for solutions. It is often researchers and young mothers (and fathers) who realise the seriousness of this violence against dairy cattle. The hormonal biology of the maternal bond is the same in all our species. However, the impact on small calves (so cute...) is explored more, while the impact on mothers is forgotten, while questions of udder health, nutrition, metabolism and cow productivity are dealt with by a plethora of specialists. The concerns expressed in all this work on cows relate to issues of productivity, growth, health and milk composition. The dairy industry, which is extremely powerful and influential, remains in total denial of maternal feelings. It's high time that this changed.

Awareness of the ethical problem posed by bull calves is growing remarkably, especially among the pioneers of organic and agro-ecological farming (CIVAM network), and some farmers are looking for solutions that are viable in their system. There are still very few of them, but there are more and more. Research has (finally!) started to take an interest. Given the diversity of approaches, they will be presented in three stages: firstly, general data based on scientific publications, then examples from the field, and thirdly a few elements concerning the economic rationale.

As a preamble, it must be stressed that keeping the calf with its mother for a limited period, say 3 weeks, is not at all the answer to the problem. Admittedly, the calf is in much better condition and, logically, will fetch a higher price than if it is separated from its mother from day one. Moreover, this better state of health reflects once again just how much distress and even nutritional deficiency the majority practices cause. But when a calf is separated when it is just a few weeks old, the sadness and despair of the separation is terrible, for the calf - whose weight gain and health will be affected - as well as for the mother.

Natural weaning begins at around 8 months at the earliest and takes place between 8 and 12 months (slightly earlier for females than for males). It is very gradual and ends with the birth of the next calf, although the special contact between mother and calf from the previous year continues beyond that. Especially with young females, the bond can last for years, or even a lifetime. But bonds with age group mates also become very important.

The distress experienced by dairy calves at weaning and separation from their mothers is linked to two distinct factors. On the one hand, separation from the mother causes mental distress because the mother provides care and affection. In nature, her presence and protection are essential to its survival, so evolution has created this very strong bond between mother and offspring. On the

other hand, the change in diet with the loss of mother's milk and the digestive consequences has an impact on the calf's health and growth. The loss of suckling, which is a major behavioural need, results in attempts to suckle other calves. As for social distress, integration into a stable group of young calves is an essential palliative.

Every extra day spent with the mother adds to the calf's health. After birth, every hour counts. A single day is already precious. Two weeks of contact is positive for social behaviour, and 12 weeks or more increases social competence. It seems that the benefits in terms of social stress reactions may be linked to higher levels of oxytocin during rearing by the mother. Oxytocin is known to generate and reinforce emotions of social well-being ('love'). So not only does separation create distress, it also deprives the calf and its mother of the happy emotions that nature intended.

"In addition to avoiding or reducing the aforementioned negative consequences of artificial rearing on well-being, prolonged contact with the mother offers unique opportunities for positive emotional states and therefore positive well-being. Maternal care includes licking, suckling and play behaviours associated with positive emotional states and beneficial physiological effects".

In the case of mother-calf contact, the later the separation - in months - the better equipped the calf is to overcome it (see EFSA, pages 120-127).

5.3.3. The diversity of systems

Work and research on this subject have developed considerably in recent years. The difficulties in finding a solution without significant disadvantages show the extent to which our dairy production is in conflict with the biology of mammals.

An **excellent overview** can be found in **FIBL Fact Sheet No. 2520, 2023**, 35 pages[73] . It can be downloaded free of charge in several languages. It describes the biology and needs of calves. It describes **11 practical examples**. **There are as many systems as there are farms.** It turns out that the vast majority of the systems described combine suckling of the calf by its mother with suckling by nurses, often as a second stage, when the mother returns to milking without feeding the calf. The best example in terms of cow-calf bonding is No. 10, where the calves stay with their mothers until they start weaning at 18 weeks.

It should be remembered once again that there are different types of calves on dairy farms, which should not be confused because the rearing logic is not the same:

- **replacement calves** on the dairy farm, particularly replacement heifers. But it can also be certain animals intended for large cattle slaughter (heifers, bullocks, steers). The conventional economic approach (to keep costs down) is to wean them off liquid feed and give them as much solid feed as possible as soon as possible.
- **veal calves** reared on dairy farms. Remember: the vast majority of non-replacement calves (males and a minority of females) are sold and collected from the age of 15 days and sent to allotment centres and intensive fattening units. The smallest and most fragile calves (Holsteins,

[73] in particular to FIBL: Technical guide2023 | English Edition | No. 1660. Cow-reared Calf Husbandry in Dairy Farming Housing Systems for Species-specific Rearing with Mother Cows and Nurse Cows.
There was an initial 2020 version.

Jersey, etc.) can be euthanised, which is probably the best thing that can happen to them. A minority of dairy farms fatten veal calves on site, for direct sale or possibly in a short circuit, even if it's in a nearby supermarket, or, ideally, to continue fattening until they reach adult age and weight. Fattening on the dairy farm is an opportunity for rearing with a nurse or with the mother, if the meat can be sold.

Obviously, the welfare needs of these two types of calf are exactly the same. Calves for replacement or calves for slaughter, both deserve not to be separated from their mothers. This is also what was expressed by the public taking part in INRAE's Coccinelle participatory research project.

In view of the diversity that is possible, the first question on farm is: **which calves, and how many calves, benefit from being reared by a cow?** Only replacement calves? Some of the males, for a potential direct sales opportunity? Or all the calves, for ethical reasons?

One variant, recommended by CIVAM in view of certain opportunities, is to send calves to a nurse cow system on a neighbouring farm.

Does the calf stay with its real mother, or with a nurse cow? This is a very important question, both for the calf and for the cow that gave birth to it. Some farms do both, or alternate. Using nurse cows can be a transitional way of changing systems, or a way of meeting the needs of the moment. But in no case can the nurse cow be considered as equivalent to the mother, and in this sense it is regrettable but nevertheless understandable that, as we shall see, most certified approaches accept both, so that it is not possible, when buying a product, to know which of the two methods is practised. The ethical hierarchy between rearing with the mother and rearing with a nurse should remain clear and transparent. And the cost is not the same.

Which cows are chosen to be nurse cows? They can be selected for reasons of udder health or other handicaps to productivity; they must also show behaviour that accepts adoptions. Some farmers let their cows alternate between milking and nursing several calves. The nurse cow can take the adopted calves out to pasture, which is a great advantage.

If the calf is in contact with its mother, how much contact is allowed each day? Contact can be permanent and free-ranging. It can also be limited, for example either during the day or at night, which would allow to recover more milk for milking, but this would still allow a certain behavioural balance. In other systems, contact time is fairly limited and concentrated on two feedings a day, with the time that cow and calf are together either before or after the feeding being extended to a greater or lesser extent. This can vary from 20 minutes to three hours. In most cases, the objective of "living together" is no longer really respected. This may reflect an old misunderstanding, as many farmers see the animal essentially through the prism of feeding, which is their job (in this case, natural milk for the calf), but other needs escape them.

Practical management also depends a great deal on the buildings available and their layout.

Now comes **the painful question of weaning**. The opinion defended here is that a serious approach leaves contact with the mother for at least 3 months, but preferably longer. The later the separation, the more the signs of distress diminish, but this can be counted in months (EFSA).

An in-depth study, based on an experiment at the Thünen-Institut für ökologischen Landbau, covered numerous criteria[74] . It compared weaning using the nose-flap method with a progressive separation method. The usual methods of assessing the stress generated also need to be critically reviewed. Either the calf is fitted with a piece of plastic (nose-flap) fixed in the nasal septum, which prevents it - from one day to the next - from suckling, but it remains close to its mother for 2 more

[74] Vogt, K Barth, U König von Borstel: Can a Gradual Weaning and Separation Process Reduce Weaning Stress in Dam-Reared Dairy Valces? Journal of Dairy Science Vol107, Issue8, August 2024

weeks and then the nose-flap is removed, the calf is separated from its mother but retains 1 week of contact through a fence. Or, in the second scenario, the contact time with the mother is gradually reduced, in three steps, while still allowing suckling during this increasingly limited contact time. Both methods generate a stress reaction. As a result, the sudden weaning of milk by the nose-flap has an impact on feeding behaviour and digestive health, and reduces playtime. The nose-flap is also likely to injure the nasal septum. The conclusion is that the nose-flap method cannot be considered favourable to animal welfare. It is, however, a solution widely adopted in mother-calf approaches (including in the Coccinelle project). Progressive separation, in this case in three steps, would be preferable, but still generates stress and needs to be developed further.

A Danish study suggests weaning as early as 8 weeks (M Bertelsen, M Bak Jensen: Comparing weaning method in dairy calves with different dam-contact levels. J.Dairy Sci.TBC, 2023). My opinion is that this weaning is taking place too early.

The difficulties and challenges of cow-calf contact are twofold:

- **how much milk will the calf drink, and what is the loss of earnings following this reduction in the quantity of milk available for sale?**
- **at what age and how should the calf be weaned and separated from its mother, when the bond between the two is so strong?**

The fact that many experiments today are focusing on weaning at 3 months is linked to **the specific nature of organic farming**, whose specifications impose a minimum milk-feeding period (but not udder-feeding!) of 3 months, whereas conventionally replacement calves and calves fattened for beef are weaned at 8 to 10 weeks. As a general rule, in organic and even Demeter dairy production, calves are taken from their mothers in the same way as conventional calves, shortly after birth (in days), except in the case of farmers who, for personal reasons, do otherwise. It is in fact these personally motivated organic breeders and minority pioneers who are driving forward knowledge and practices. They deserve recognition. But there is no such thing as an organic veal production chain (apart from exceptions such as direct sales or short distribution channels). In fact, the vast majority of small calves born to organic cows, which are not used for replacement, are sent for industrial fattening or even long transport, just like conventional calves. And most consumers of organic dairy products are unaware of this shortcoming.

Natural weaning takes place gradually between 8 and 12 months (a little later for males than for females).

The fact remains that gentle, gradual separation, in any case after the age of 3 months (the age at which immunological maturity is acquired) and preferably later than 5 months (with weaning as natural, late and gradual as possible) and in a stable group of calves, is for the moment the best alternative that needs to be voluntarily developed.

The fact remains that the long-term objective of living for several months with the mother does not obviate the need to take all urgent measures in the current context to improve the lot of the countless calves taken away from their mothers, and therefore to do away with all confinement alone and to provide the necessary space and comfort as well as a healthier diet, in particular hay.

A final thought on the subject of **nurses** and respect for the mother-calf bond. It's very difficult in animal farming to get away from the logic of the 'least worst'. Even in a very progressive, agro-

ecological and ethical context, there is still a certain coldness in the exploitation of animals. Let's take a look:

> *"On the Mirecourt farm, the heifers spend their first 24 hours with their biological mother. This is an opportunity for her to lick her calf and feed it colostrum. The mother-calf pair is then separated: the cow goes off to be milked, and the calf to a collective hut where it is fed using a milkbar until a foster mother becomes available for* ***adoption****. Cows for suckling are generally chosen for their docility, but also for their lesser adaptation to the farm's dairy system (locomotion problems, defective quarters, etc.). Nearly half of all foster cows are culled at the end of their suckling period. When pairing cows, the farmer is careful to* ***break up the mother/calf pairs*** *so that she does not favour her calf. Depending on the cow's milk potential, she is allocated two to three calves. To create a bond between the aunt and her calves, they are all placed in a hut for three weeks before joining the group of other mothers in the herd"*[75, 76]

It's an implacable logic, because you have to be efficient: break the bonds (note that others say the opposite![77]), and cull the animals. And the reasoning behind it: to get the calves to grow well so that they can calve for the first time at 24 months, so limiting unproductive time and collecting good points for the carbon footprint! Only replacement females are adopted. However, the great thing is that the time together lasts 7 to 8 months, throughout the grazing season, and the nurse cow can also be happy - one last summer of happiness, that's beautiful. The calves are healthy, there is no more diarrhoea, and the calves develop immunity to parasites.

Rearing calves with foster cows is therefore a huge step forward, but it is still a compromise that falls far short of meeting the ethical challenge, all the more so when, more often than not, it only concerns replacement female calves. The classic logic is to reduce working hours and improve the calf's weight gain and health. Moreover, the process of imposing adoption on a nurse cow is sometimes marked by violence: she is locked in the feed fence until she accepts. For her, Plan B is the slaughterhouse. To be honest, in this cynical system, the choice to give a cow to be culled the role of a foster cow allows the culling to be delayed and the cow to enjoy another happy season of life. That's no small thing.

A survey[78] of farmers who leave calves with their mothers leaves an ambiguous impression. On the positive side, this chapter of the book tells how these simple, natural practices have spread, and describes the happiness that farmers can find in them. However, it does not show how objectively hypocritical and cruel it is to sell calves that have lived with their mothers for 3 weeks to the conventional market; the farmer's main satisfaction is to get a better price because these calves are in excellent shape (much better than a bucket-fed calf). We should at least ask the question and think about it: how is it possible to commit such a betrayal of one's animals, while at the same time pleasing oneself by revelling in the only three weeks of happiness that these calves have before being sent to hell?

The unanimous opinion of those who allow their calves to be raised by a cow is that the health of the calves is so much better.

[75] https://www.web-agri.fr/veaux-et-genisses/article/224309/vache-nourrice-et-veau-sous-la-mere-avantages-et-inconvenients

[76] video: https://www.inrae.fr/actualites/vache-nourrice-elever-veaux-laitiers-autrement

[77] https://www.fibl.org/fileadmin/documents/shop/1033-engraissement-veaux.pdf page 17

[78] S Petit and F Hellec: Materner les veaux. Pratiques et innovations d'éleveurs à l'épreuve de la normalisation du bien-être animal. in D'une agriculture l'autre. Conflictualités, expérimentations, transmissions. 2023 *(Mothering calves. Practices and innovations by farmers facing the challenge of animal welfare standardisation. in From one form of agriculture to another. Conflicts, experiments, transmissions.(*

These observations alone on the health and happy, contented behaviour of calves with their mothers in the meadow are enough to discredit the zootechnics of nutritionists, with all the misfortunes and perversities they have invented and imposed on animals and farmers in order to sell them the junk of one party or another.

Today, the return (at last!) to the physiological feeding of calves, i.e. their mother's milk and grazing, is being hailed as an "innovation". Let's hope that this very fashionable magic word will be used to speed up the transition by mobilising CAP aid.

5.3.4 'Cow and calf' initiatives and research: Switzerland, Sweden, Germany, France

Share your milk with the calf https://www.mu-ka.ch/

The Swiss association Mutter-Kalb-Haltung (Mother-Calf Breeding, abbreviated **Muka**)[79] is active mainly in Switzerland. Its aims are to support scientific work on the subject of mother-calf rearing, to promote and support this natural and sustainable form of rearing, to pass on knowledge and to support farms wishing to convert. All calves, female and male, stay with their (real) mother for at least 3 to 10 months, suckle their dam, and the cow can raise her calf in accordance with her nature. This is an ethical approach that should benefit all the calves on the farm. On farms converting to mother-calf rearing, the duration may still be slightly less than 12 weeks, or may not yet cover 100% of calves.

Farmer Evelyne Scheidegger leaves her calves with the mother for 10 months. She says[80] that a return to the old system is inconceivable. Also, no colleague who has once reared calves with their mothers is able to take a calf away from its mother afterwards. Admittedly, some have left the Muka approach because it was not economically viable, but either they no longer have any cows, or they switch to suckler cows that are never milked.

The rules of **the Cowpassion association**[81] (which works in partnership with Muka but is independent) require calves to stay with their mothers for at least 4 months. At the beginning of 2023, Cowpassion set up a cheese dairy (Switzerland) through crowdfunding and delivers cheese to

[79] https://www.mu-ka.ch/mutter-kalb-haltung/was-ist-muka/
[80] Berner Zeitung
[81] https://cowpassion.ch/

subscribers' homes. This cheese dairy only processes milk from Muka farms (Mutter-Kalbhaltung = mother-calf rearing). In Switzerland, this means a few dozen farms out of 17,000. But there's a waiting list for cheeses, and not enough producers. In Zurich, gelatissimo is producing its first ice cream with Muka milk. In this approach, it's really the ethics that count. The producers talk about the pleasure of seeing cow and calf together, and of having a clear conscience. One says that, especially after having had a son himself, he can no longer take the calves away from their mothers. These farms are organic. Cowpassion communicates about "sharing my milk with the calf". The aim of the association is to obtain a sufficiently high price for the milk to make this sharing viable, and to ensure that the money actually reaches the farmer and the animal (see below).

Cowpassion also offers sponsorship for old dairy cows and bull calves so that they can live longer. A voluntary surcharge on cheese would finance a cow's retirement. The limits of such a project seem obvious. But it's a good idea to think things through. The last word has not been said.

Cowpassion publishes a list of Cow-Calf International initiatives. [82]

The **Swedish University of Agricultural Sciences** (SLU) is studying[83] whether cows and calves can be kept together in a milking robot system. In October 2024, 5 out of 7 experiments had been carried out. The issue is that it seems that many cows feeding their calves do not eject their milk as well into the milking machine. There could be ways of ensuring that milk is ejected for both calf and milking machine, and the first few days could be important for this. The milking robot is a key factor as it milks each quarter of the udder separately. Calves often prefer the front teats, which may be empty at the time of milking, while the rear teats are full. - The trials can be viewed on the internet at[84] , with photos and videos and plans of the barn, but there are few results to show for the moment. In the cowshed, it's a question of finding efficient routes for the cows. As for the calves, various progressive weaning schemes have been applied, including a comparison between separation at 4 months and 8 months. The experiments involved both indoor and pasture-only production. The 5th experiment took place in a modified setting with no restricted paths, where the cows and calves had free access to all resources. The calves will be separated at 4 or 6 months. For the first time, a comparison will be made between cows that have themselves been raised by their mothers and conventionally reared cows.

The European project (€2.7m) TransformDairyNet: Working together to upscale Cow-Calf-Contact dairy production and beyond[85] aims to upscale cow-calf contact dairy production systems. "*Leaving cows and calves together for months rather than the usual hours or days improves health, growth and normal behaviour accompanied by pleasure, and is the ethical practice best accepted by consumers to increase the sustainability of dairy systems consistent with the Green Deal.*"

Resources and webinars https://transformdairynet.eu/events/ are available on the website of Transformdairynet.

[82] https://cowpassion.ch/ueber-uns/cow-calf-international/

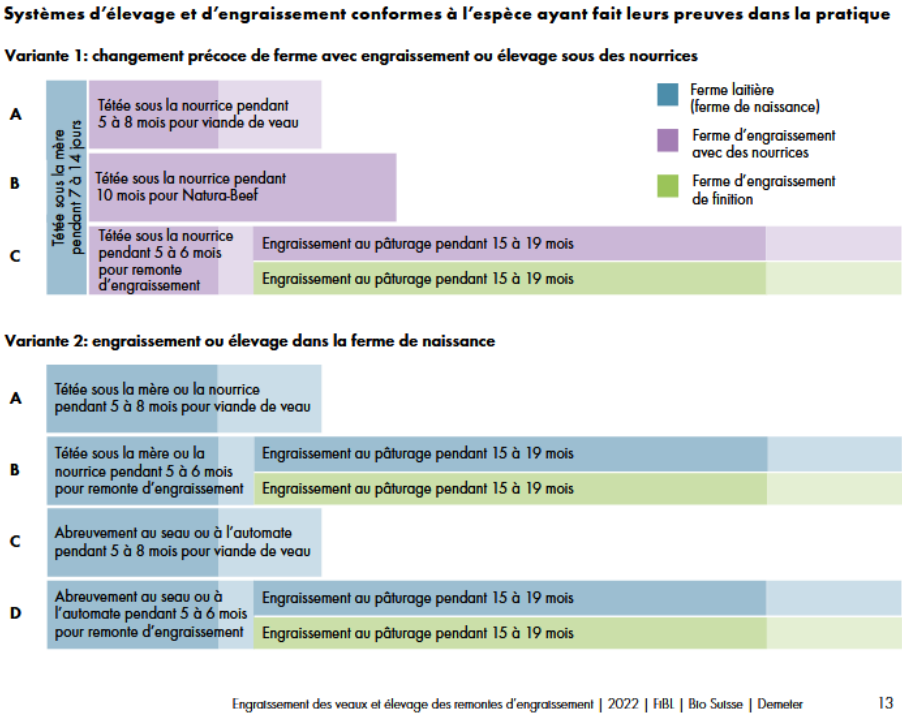
[83] This follows on from the work of Sofie Fröberg. In 2011 she concluded that calves that suckle freely from their mothers for 8 weeks (abrupt weaning) should also be stimulated to ingest solid feed.

[84] https://www.slu.se/en/faculties/vh/research/forskningsprojekt/not/cow-and-calf-together/about-the-project/

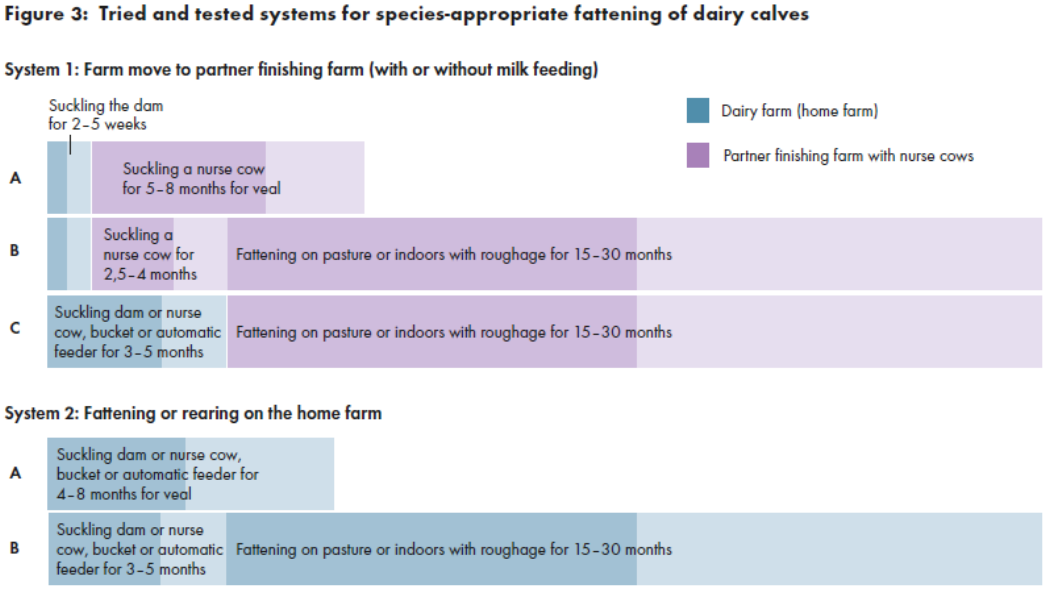
[85] https://cordis.europa.eu/project/id/101133326

In the Netherlands, milk labelled "Kalverliefde" (veal love) is sold in most of the major supermarkets (Albert Heijn, Plus)[86] . Once again, the Dutch are being creative, experimenting with the best at home (pioneering projects), but their companies are developing the worst elsewhere, such as fattening veal calves in France (and intensive chicken farming).

From 2019, a joint publication[87] from organic farming organisations will present **alternatives to conventional fattening that meet the needs of calves from dairy farms**. **The Swiss version** (2021) presents the following systems:



The English version of the FIBL brochure explains that in the UK veal calves enjoy better welfare than in the EU because they tend to be kept in naturally lit straw barns, fed a suitable diet, and some have access to pasture:



[86] https://mailchi.mp/d443a50ae43d/heatstresstransport-9599948?e=5dc5c3b6c6

[87] https://www.fibl.org/fr/boutique/1033-engraissement-veaux This is the 'Germany' version. The first Swiss version dates from 2021. Different regulatory and economic contexts are taken into account. English version: https://www.fibl.org/fr/boutique/1598-kaelbermast-en

The conclusion is that *"the examples presented show that there are various possibilities for rearing and fattening calves so that they can be fed naturally, can live in a manner consistent with their species and only require antibiotics in emergencies. ... ... Good collaboration between partner farms brings economic benefits for all systems and contributes to animal welfare."*

It is all the more scandalous that Wageningen Research, in its report for the European Commission, does not answer the question posed, namely the local rearing of dairy calves, and finds nothing better to do than fantasise about improving transport and genetics. What contempt for the excellent work being done in organic farming!

The **'Germany' version** (2019) of the same brochure focuses on the problems of carcass classification (a question of weight, not colour). It aims to address the fact that 90% of non-replacement organic dairy calves go on to conventional fattening, while systematic antibiotics, milk replacers and fully slatted floors do not rhyme with 'organic'. But the difference with the Swiss version is major: here it is systematically accepted that fattening for 15 to 30 months can take place either on pasture or in the barn, whereas in the Swiss version fattening always takes place on pasture. Some of the farm examples are disappointing, while others are remarkable, such as the examples of fattening young bulls on pasture, and the partnerships between fatteners and nearby dairy farms (in France, for example, this is what the CIVAM network is developing).

Still in Germany, here are a few more examples:

The **IG Kuhgebundene Kälberaufzucht**[88] (IG = Interessengemeinschaft = community of interest for rearing calves with a cow), created in 2021, brings together farmers who want to develop the rearing of calves with a cow in dairy production and to keep dairy calves on organic farms. To achieve this, they need the support of consumers, because more respectful rearing of cows means higher costs for farmers. According to the website, there are 28 direct members (the farms; but many more practising farms!) and 29 supporting members (including e.g. Demeter e V, Bioland e V, Alnatura, Edeka Südwest...). The rule is that calves must spend at least 90 days in a herd structure with cows and suckle milk from their mother or a nurse. *"It's like this: cows know better than humans how to rear calves".* But here the criteria are more flexible than for other initiatives, in that calves from the age of 3 weeks can move to another farm with nurse cows. Calves must always be able to suckle alongside a cow, but if this is considered to be impossible for management or building reasons, another derogation allows them to suckle only twice a day while still having so-called appropriate social contact (minimum 2 x 20 minutes contact - that's very little!). Farms in conversion are allowed to let a maximum of 50% of their calves leave the system after 4 weeks, but in this case the farm's milk cannot be marketed with the "Kuhgebundene Kälberaufzucht" label. We can conclude that this brand or label is disappointingly flexible, but these flexibilities respond to difficulties and are undoubtedly a way of facilitating the transition to more complete systems, given the difficulties that can put off conversions. In fact, much depends on the facilities or obstacles created by the existing buildings and equipment on the farm, and above all on the market outlets. In any case, the criteria, control checklists (in combination with organic control) and penalties are transparent .[89]

Let us add a remark: in a webinar of the TransformDairyNet the conclusion was that cow-calf-contact is practiced in many different systems, and that the willingness to do so seems much more important than the kind of system.

In France, the CIVAM network has given a great deal of thought to how to handle bull calves[90] , with a concern for ethics, animal welfare, consistency and autonomy of production methods. In 2019, the examples presented concerned the direct sale of veal (from very young calves) in crates

[88] https://ig-kalbundkuh.de/

[89] https://ig-kalbundkuh.de/wp-content/uploads/2024/05/Schulung-Inspektoren-_kuhgebundene-Kaelberaufzucht_-20220627_171449-Besprechungsaufzeichnung.mp4

[90] https://www.civam.org/que-fait-on-des-veaux-males/

after rearing with foster cows, or the continued fattening of pasture-raised steers. One particularly interesting approach has been to extend lactations: some cows have lasted 500 days while producing up to 25 litres a day, and this persistence has been passed down from one generation to the next.

The **VALOMALE project**[91] has looked at the value of males in organic farming, with the creation of an economic interest group (GIEE). The aim is to have either dairy calves or older animals. For the farmers, it makes sense to ensure that the animals remain in the organic sector.

At present, the most widespread practices in the CIVAM network, which are viable and satisfactory because they are consistent with the sustainable grassland farming system, are the rearing of replacement calves by foster cows on pasture. They are generally separated from the mother before 2 days. This type of rearing is a real trend in this area, where the majority of farmers are organic farmers. However, if the nurse has three calves to feed, there is a risk of milk malnutrition. But rearing with the real mother is exceptional. Non-replacement calves stay with the mother for around 15 days before being sold in conventional channels. Jersey calves, which are very small, are a particular problem because nobody wants them. Some sell the meat directly, without necessarily investing much in their fattening, which seems to be the least bad solution.

The **Biolait network** is also giving some thought to the subject. It has produced 2 films entitled "Cows and us".

INRAE's COCCINELLE project (CO-Concevoir avec les Citoyens et les agriculteurs un Nouvel ELevage Laitier Ecologique de montagne)[92] in the Massif Central is a participatory project that is testing, at Marcenat, with 28 cows (not all of them), a 100% grassland breeding system that reconciles biodiversity and production. The calves are raised by their mothers until they are weaned at 3 months, *"enabling them to maintain the natural bond between mother and calf, to learn from the cows and to develop richer social relationships".* "In fact, this mainly concerns replacement calves and 8 bull calves (the number that can currently be sold in crates at INRAE). It was the citizens involved in the participatory project who insisted on including the young males in the process. The other males stay with the mother for 3 weeks and are then sold in the conventional circuit - a terrible trauma indeed. Separation of the replacement females involves 2 preparatory stages: a week's nose-flap with the mother, followed by the calves kept in the meadow next to the mothers. Given the separation that follows, is it worthwhile to leave the mother and calves together for a period of time? The farm's staff are clearly positive: yes, it's worth it, even for those who leave at 3 weeks, YES, and even staying just one day with the mother is better than nothing.[93] Some economic information will be given below.

INRAE also has a programme on calf rearing by foster cows (Unité ASTER, Mirecourt). One of the objectives is to explore the knowledge of farmers. *"The state of health and well-being of calves and cows is generally considered to be very positive by farmers, who use a rich and eloquent vocabulary to describe the behaviour of the animals and the relationships between them. Interviews revealed a high level of satisfaction, a source of pride in their work, and a shared sense of well-being between farmers and animals. Behavioural tests and direct observations of ASTER's calves-foster cows herd confirm the absence of health problems in the calves, and the establishment of an attachment between the calves and their nurses. Regular monitoring of the nurse cow's body reserves and other health indicators (lameness, etc.) is important to avoid having animals in poor condition at weaning."*

One approach to solving the problem of dairy calves, which this time concerns male calves, is to use them for red meat production. This approach is favoured in both conventional and organic

[91] https://www.biopaysdelaloire.fr/valomale-valorisation-des-males-en-agriculture-biologique/ and
[92] https://www.inrae.fr/actualites/co-concevoir-citoyens-nouvel-elevage-laitier-ecologique-montagne-coccinelle
[93] Personal communication from Dominique Pomiès

farming. Recent experiments have focused on the **production of steers**, i.e. young castrated males slaughtered before the age of 18 months. See more information in the next chapter.

From the point of view of consumer ethics, the right thing to do is to give up the consumption of the usual large quantities of low-cost dairy products, i.e. to reduce the consumption of milk, yoghurts, butter and cheeses (according to individual preferences) in order to share the cow's milk with her calf and pay a fair price for it, while contributing to the essential reduction in animal proteins.

It is also ethical to eat the meat that comes from this dairy production, by seeking information on the conditions in which the animals were reared and paying the right price: did the dairy calves have a good life? Were they raised by their mothers?

The most important thing is to support the farmers who leave the calves with their mothers. Support means buying the products, at a fair price that respects the living.

5.4. Focus on extending lactations

There remains one particularly interesting and promising approach at both ethical and global level: long lactations, i.e. > 700 days, which INRAE and VetAgro Sup have begun to study.[94] This is not simply a question of delayed insemination. We are talking now about lactation persistence for 2 years, and why not 3 or 4 years. The work began with investigations into cases of long lactation[95] that have occurred among farmers, not voluntarily, but accepted with positive experiences in the end. It seems that the cows do well and live longer. Past trials (Trevarez experimental farm)[96] have shown that the economic impact is either nil or positive in favour of lengthening the calving interval to 18 months instead of 12 months, and that there is no change in health status or reproductive results, these two problems being the main causes of culling (followed by lameness). Extending lactations avoids problems at the start of lactation and increases cow longevity. The detailed data were examined. Luc Delaby, the INRAE engineer, says in November 2023: *"We're practically in uncharted waters, nobody has really looked at this yet!"* Indeed, milk recording produces an incredible amount of data on productivity and milk 'quality', but misses the essential point. Fewer calvings not only means fewer distress for calves, it also saves farmers an enormous amount of work and stress.

A **recent survey**[97] **asked farmers** who practise long lactations with certain cows about their experiences of long lactations (550 - 730 days without calving) and very long lactations (> 730 days). The main reasons are to avoid drying off cows that produce a lot of milk without any problems (and/or fail to reproduce), to limit the number of calvings, to age the cows and to limit the number of replacement heifers. In herds where it is practised, 11-14% of cows are affected. The most productive cows may also have the most abnormal cyclicity, hence the delays in reproduction.

[94] https://www.web-agri.fr/reproduction/article/848013/des-lactations-longues-pour-les-vaches-laitieres-une-bonne-idee and https://www.web-agri.fr/velage/article/873978/lactations-longues-et-si-l-objectif-d-

[95] The results will be presented at the 3R conference in early December 2024.

[96] The publication is not available.

[97] Fabienne Blanc et al: La pratique de la lactation longue chez la vache laitière : Quelles motivations ? Quelles performance? 27. Rencontres autour des Recherches sur les Ruminants, Institut de l'Elevage-INRAE, Dec 2024 pp 187-190 *(The practice of extended lactation in dairy cows: What are the motivations? What is the performance?)*

The Swiss association Cowpassion has produced a report[98] on long lactations, **based on literature research** and **surveys** of one German and one Swiss farm. Longer lactation, i.e. later insemination of dairy cows, leads to fewer calvings and therefore a smaller surplus of calves for replacement. This opens up the possibility of calves being reared on the farm where they were born and by their mothers.

The international literature contains data on long lactations ranging from 18 months to several years. Average milk production over several years was often higher than in cows with conventional 300-day lactations. Over time, milk quantity decreased, but protein and butter (fat) levels increased. There was no significant impact on udder health. Insemination at a later date, when production falls, results in better fertility conditions. Increasing the number of heats can lead to injuries. Longer lactation delays the drop in production caused by the new pregnancy. Most illnesses and incidents occur around calving; if we replace 3 lactations of 300 days with 2 lactations of 450 days, we save a period at risk. By reducing the risks, the cows become older. With the extension of lactation, the body condition index increases; this is only partly significant, as it depends on many factors, but we have to watch out for the risk of excessive fattening.

The economic impact is complex, depending on the country, the feed ration, the price... There are fewer calves to sell and in the second year a little less milk, but better protein and butter content, which improves the price obtained. The average production over 3 years can be higher than the standard. Replacement costs are lower with fewer animals.

Is this possible in a grazing-based system? Australian studies say yes. Belgian and Danish organic farms confirm that it is possible under organic farming conditions.

The Cowpassion report highlights a number of key points. Most studies conclude that not all cows are suited to extended lactation and that they should be selected for this purpose. Genetic factors seem to play a role. Primiparous cows have better persistency because the udder is still developing. Cows that had good lactation persistency the first time round generally have the same persistency in subsequent lactations. Cows selected for long lactation generally did not produce significantly less than in the standard cycle, but randomly selected cows produced less.

Most of the studies were carried out with Holsteins. The question arises as to whether other breeds can be adapted.

Cows produce more when they are milked more often. In a long lactation, three milkings a day also increases production. The effect on the persistency of keeping the calf with the cow has not yet been examined. However, stimulation by suckling should have a positive effect.

In pasture-based systems, energy-rich supplementary feeding had little effect on milk production and persistency. However, in most studies the concentrate ration was not adapted but remained constant. At the start of lactation, cows need energy above all, and then more protein. But in organic farming, concentrates are limited, so protein requirements for prolonged lactation have to be met with forages, in other words legumes or young grass hay. It has been found that with seasonal grazing, milk production increases again in the second spring.

How efficient is extended lactation in terms of resource use? Fewer calves means less feed for the herd, for more milk. So greenhouse gases are reduced. With fewer calves, less land is needed and calves can be kept with their mothers, which means fewer antibiotics and greater well-being.

The Swiss farm that practises prolonged lactation selects the animals (small, light animals), gives good fodder, and obtains around 6,000 litres/cow.

[98] https://cowpassion.ch/wp-content/uploads/2020/08/Schlussbericht-Mehr-Tierschutz-f%C3%BCr-K%C3%A4lber-und-weniger-Tiert%C3%B6tungen-durch-l%C3%A4ngere-Laktationen-bei-Milchk%C3%BChen_online.pdf

The German farm raises cattle without slaughter. Average lactation is 3 years. The rations are adapted. Frequent heat is not a problem, because there are several small groups of 4-5 cows.

The Deutsche Gesellschaft für Züchtungskunde (German Society for Animal Breeding) is in favour of extended lactations to improve the breeding system (2020), citing the same advantages and disadvantages as the Cowpassion report.

In the end, some questions remain unanswered. Are even much longer lactations possible? How far does this make economic sense? Are certain breeds or genotypes better adapted? How should more frequent heat periods be managed? And above all: what impact will feed rations have?

There is no doubt that the current system of milk production is profoundly anti-physiological. This is confirmed by the reasons why cows are culled, at just over 5 years of age on average: the first cause is non-fertility, than udder problems and lameness. But everyone has got used to this and no longer sees the scandal.

A long-lactation system couldn't be worse!

In our personal view, given the objective of LESS and BETTER, the benefits of extending lactations over several years would be immense, both for the animals and for the environment (although a significant number of cows would have to be involved):

- fewer dairy calves born: less distress
- GHG emissions from dairy farms would be lower, and this would be a much more effective and far more attractive reduction than what is currently advocated, namely earlier calving. Moreover, earlier calving is associated with a shorter lifespan (but higher overall production); the 'carbon' benefit is uncomfortable... Also, the carbon balances of dairy farms are perfectly misleading, in the sense that the animals that have left the farm are not counted, even though it is milk production and nothing else that is responsible for their existence and their emissions. Extending lactations, with far fewer calves, will make it possible to draw up accurate carbon balances that can be used as a 'carbon label'.
- a new and more ethical calf value chains will be in a better position to absorb fewer male calves under excellent welfare conditions
- cows will be able to live longer: at last, ethics and carbon can go hand in hand.
- a much larger proportion of females (or even all of them) can be replaced (sexed semen could help achieve the desired balance)
- the cost of replacement animals is much lower, since fewer are needed
- to set up truly ethical production, calves will have to be reared by their mothers; in the case of very long lactations, the percentage of milk drunk by the calf as a proportion of total milk will be greatly reduced
- reducing the number of animals will make it easier for cattle to return to grass, with stocking rates that are compatible with restoring biodiversity
- the farmer has less work, less stress, with fewer calvings
- far fewer antibiotics are needed
- this makes it possible to continue milk production while reducing livestock numbers, and reconciles environmental objectives with animal welfare ethics
- nitrogen pollution is considerably reduced or eliminated with a return to grass
- abandoning intensive calf fattening eliminates the environmental impact of industrial feed (if the by-products are really useful and 'sustainable', they can be given to monogastric animals or to the bioeconomy).

One difficulty is herd agitation, given the frequency of cows in heat. This will undoubtedly mean a greater need for space and non-slip flooring.

One notable technical obstacle is group calving, which means that the milking parlour can be closed during the dry period. However, a system with long lactations could certainly offer other advantages in terms of work organisation, including a reduction in the number of calvings.

Of course, the natural rhythm is to give birth in spring, but it also means infertility (the number one cause of culling!) in the event of stress. The fact remains that in domesticated life, well-being and the effectiveness of medical and veterinary care inevitably lead to birth control, as is the case not only for humans but also for our domesticated dogs and cats. Of everything that is 'natural', we have the right and the duty to reject that which causes suffering for the subject.

In fact, (very) long lactation could provide an almost ideal solution to most animal welfare and environmental problems of dairy farming.

We would like to thank INRAE and VetAgroSup for working on this.

We encourage the industry to implement this solution, so that one day we can say that milk is produced with respect for the maternal bond - a condition for making it acceptable.

6. The economics of cow-calf initiatives

There are two reasons for the **unease surrounding non-replacement dairy calves:**

One is ethical. It is (still) relatively confidential, but ociety is likely to become less and less accepting of the way in which calves are treated. For the time being, initiatives that address this issue are aimed at a niche market.

The other is economic: how can these calves be valued? The initiatives to address this issue are led by the industry and are positioned in the national and international meat markets.

Let's start with an international overview based on an IDELE study from 2021[99] (which will also be quoted later). Dairy farms get rid of their calves and, and, unfortunately for them, calves are the subject of a ruthless trade.

Then we'll look at current thinking and experiments in France, and finish with a few economic indications on the models and initiatives that interest us most, namely rearing calves by their mothers or, as a second choice, by a nurse cow.

Finally, let's look at what a recent INRAE article says about making better profit of calves as a response to their distress.

6.1. The context: the future of dairy calves, internationally and in France

Internationally [69], each year 1.7 to 2 million calves are exported by EU Member States (5% to third countries).

In Spain, imports of baby calves are increasing: > 500,000 (<160kg) in 2020. **France is the leading supplier**. The Spanish fattener entrusts the first phase to a starter farm, and the calves are weaned at the age of one month. They are fattened competitively into Young Cattle for slaughter between 8 and 15 months, despite the fact that Spain has to import a large proportion of the feed. Once again, these animals are exported live (> 200,000 young cattle by 2020). "*The success of exports of finished young cattle to Mediterranean countries is confirmed year after year (Lebanon, Libya, Turkey, Egypt, Algeria)." "To fill a 2,000-head boat in Spain, you need to select 10 groups of 200 head from a handful of farms",* which makes it possible to create homogenous batches. We are all aware of the lack of protection for these animals once they reach their destination, and the dilapidated state of the boats in Spanish ports.

Germany will export 630,000 calves in 2020, 90% of them to the Netherlands. We will look at some particularly virtuous German initiatives later on, and we can no doubt understand the launch of such schemes with the support of society as a reaction to an appalling situation. There are farmers who refuse to let their animals go in this system. In Germany, the dairy herd is shrinking. JBs are mainly fattened on maize and grass silage. The veal calf sector is marginal, with white calves in the north-west and pink calves in the south. The KDK (Kontrollgemeinschaft Deutsches Kalbfleisch, see above) has around 300 farmers; the website has a lot of blah blah blah about controls and animal welfare. Germany also consumes white veal, often imported from the Netherlands.

The Netherlands will be importing 830,000 baby calves in 2020. Germany is the leading supplier. Dutch feed manufacturers are leaders in France and are also the promoters across Europe of an integrated fattening model that does not care about the animal's needs (see standard methods under 2). They produce white veal (70%) and pink veal (30%). Young beef production is low. Pink veal helps to reduce feed costs because roughage costs less than the milk replacer that dominates for white veal. "*The gradual and partial convergence of decoupled aid under the 1st pillar of the CAP has*

[99] IDELE Dossier valorisation des veaux laitiers Filières bovines n°523 October 2021 *(Report on the added value of dairy calves)*

reduced the aid allocated to veal farmers, which has been offset by an increase in national, regional or European investment aid (2nd pillar of the CAP). Depreciation charges and specific costs (effluent treatment, building maintenance, etc.) for veal farms, reflecting expenditure on farm modernisation, have therefore tripled since 2001." In the Netherlands, animal welfare and environmental issues are fully recognised, and there is a strong tendency to turn to the Beter Leven (better life) label. The Dutch are capable of remarkable innovation, but their industries such as Van Drie and Denkavit, or Plukon for chickens, are developing abroad what is less and less accepted at home.

Wageningen Research, which also prides itself on its sustainability research, has provided the European Commission with **a scandalous study.** The Commission asked the excellent question of how to move from the long transport of calves to local fattening. Wageningen Research did not answer the question[100] (except for a half-page of trivialities evacuating the subject) but went on at length about how to improve transport and make the most of calves, in particular through genetics. The animal feed industry seems to have a firm grip on the reins and is certainly offering good careers to young engineers.

Poland, which used to be an exporter of calves, now fattens its own calves into bull calves, so it is now exporting beef (84% of production slaughtered in 2020). The CAP provides direct aid of 72€ per head. At around 2-3 months, when they are weaned, the calves get used to slatted floors. They are fattened on silage and cereals. Meat is competitive because of the low wages in slaughterhouses where immigrants work.

France exports 320,000 head.

Italy is replacing dairy calf imports with grazing cattle.

Ireland was fattening up a lot of steers, heifers and JBs on grass, with milk-meat cross-bred calves. The dairy herd is growing fast, the British market for meat is shrinking, the export of calves is being contested, nitrogen is in excess, so Ireland has a few problems to deal with.

Denmark produces rosé veal (50% of males), slaughtered at 8-12 months, and is developing cross-breeds including Blanc Bleu, Charolais and Angus. TJB (Très Jeune Bovin = very young bovine) calves account for 25% of males, and 15% of calves are sent to the Netherlands. The calves receive concentrate and roughage as much as they want. Average daily gain (ADG) is maximised. In 2022, a law restricted the euthanasia of calves, prompting farmers to seek out grass-fed options for small Jersey calves. This is not viable without specific public support.

In Switzerland, cross-breeding is progressing, but the Blanc Bleu Belge breed is little used for ethical reasons (unlike other countries of which France, unfortunately). Dairy farms often fatten their own calves on the farm. The majority of farms are small, with a strong societal attachment to mountain farming and the subsidies that go with it. Bull calves, steers and heifers are mainly fattened on grass. 25% of calves have access to the outdoors and are sold under labels.

Quebec produces milk-fed veal and grain-fed veal (rosé). Steers (young castrated cattle) are being developed. Grain-fed veal receives income stabilisation aid, while milk-fed veal no longer does. Imports are on the increase, from New Zealand, the United States and increasingly the Netherlands. Steers have hormone implants.

In the United States, male dairy calves are raised as steers with hormone implants, in feedlots with a GMQ of 1600g/day. Bob calves are slaughtered after a few days and used for processed meats. Formula fed or nature veal is similar to milk-fed veal, slaughtered at 18-20 weeks. In 2016, the Tyson Foods Inc. abattoir stopped accepting dairy steers.

[100] https://op.europa.eu/en/publication-detail/-/publication/3512d19b-d71a-11ec-a95f-01aa75ed71a1/language-en
Critical commentary:
https://elevage-ethique.fr/en/transport-des-veaux-comment-wageningen-research-sert-lindustrie/

New Zealand produces 4.9 million calves a year, 10% of which die or are euthanised at birth. The bobby calves (males) are collected and slaughtered between 4 and 15 days old, weighing between 20 and 40 kg, after a minimum of 4 days with their mothers. They become petfood and, above all, exported minced meat. Feeder calves are better conformed, crossbred, and fattened with two or three seasons of pasture without concentrates; their meat becomes hamburger, especially in the USA. The export of live cattle is banned. The ethical problem of bobby calves is obvious, and New Zealand is looking to develop a 'New generation beef' sector, grass-fed and slaughtered at around 12 months. The idea is to reduce greenhouse gas emissions from dairy farming by allocating part of the emissions to meat production. Instead of reducing the dairy herd and having fewer births!

In conclusion, this overview by IDELE shows :

- For all the major dairy producers, the fate of male calves raises questions and can even become embarrassing.
- active research is seeking to develop ways of adding value to carcasses that meet a specific market, and for some, but by no means all, grass is the cheapest feed.
- an international trade in live calves is driven by market-distorting opportunities (known as 'competitiveness') that have nothing to do with the environment, animal welfare or social issues, but above all with the profitability of the animal feed and trade sectors.

Unsurprisingly, the fundamental problem of milk production, namely the separation of calves from their mothers, is not addressed. The focus remains on carcasses.

And what are the thoughts of the French industry on the future of dairy calves?

6.2. Improving calf welfare

Veal consumption is falling: -9.4% between 2022 and 2023[101]. French production is down by 7.1% in 2022 (1.3 million in 2013)[102] . In 2022, France will produce 1.1 million calves for domestic consumption, 94% of which will be fattened in 2,300 integrated units. Yet there is talk of one crisis after another (with 6 to 7% too many calves[103]), and of a need for more calves. The industry is keen to set up veal farmers.

The chairman of Interbev Veaux (the veal sector of the beef 'interprofession'), Gilles Gauthier, can also speak on behalf of Dutch integrators[104]. In an interview (2022)[105] , he said: *"The veal sector is part of a circular economy. It contributes to the virtuous recycling of more than 60% of the males from the dairy herd, and also uses a significant proportion of by-products in the ration (whey, cereal by-products). This is a sector that generates jobs. Veal production is working hard to meet society's expectations: investment in anaerobic digestion systems and photovoltaic panels to move towards climate-neutral production; improving the feed efficiency of rations; responsible sourcing of raw materials; upgrading of rearing buildings to improve the health and well-being of calves. The industry has recently invested heavily in a project to build a collective experimental calf rearing barn,*

[101] AGRESTE Synthèses conjoncturelles June 2024 n°424

[102] FranceAgriMer https://www.franceagrimer.fr/fam/content/download/72901/document/20240130_FICHE_FILIERE_VEAU_2024.pdf?version=9

[103] https://www.ouest-france.fr/economie/agriculture/veaux-laitiers-un-marche-regulierement-en-crise-avec-6-a-7-de-veaux-en-trop-7112426

[104] On 3 March 2020, he was presented as the former Managing Director of Sobeval, now Strategy and Marketing Director of the Van Drie group, owner of the Boulazac slaughterhouse, which was closed following the unbearable images shown by L214. https://www.francebleu.fr/infos/agriculture-peche/video-le-discours-de-gilles-gauthier-devant-les-eleveurs-1583256139 recorded on 29 November 2024

[105] https://pointsdevente.fr/pdv-business/filiere-veaux-a-lepreuve-de-la-crise/, surveyed on 13 November 2024

supported by Idele, on the Mauron site. The aim of this project is to support the transformation of the French veal industry towards more sustainable and responsible practices, meeting consumer expectations while creating added value. This new experimental barn is a key tool for preparing the future of the veal calf industry and maintaining its world leadership." It's a fine example of euphemistic language, and we don't really know how much it disguises the indefensible and how much it paves the way for real progress, when it mixes societal expectations with the industry's own ideas in terms of anaerobic digestion, co-products and feed efficiency.

How to add value to dairy calves is indeed the big recurring question. Improving their welfare and environmental impact at the same time helps to communicate positively, because societal pressure is strongly felt. While traditionally the production of young calves was used to clear the red meat market, today the supply of red meat from the dairy sector could be a welcome way of safeguarding industrial facilities.

The beef industry wants to counter imports (consumed mainly in the catering sector) and relocate in France the (intensive) fattening of young cattle. But in 2025, prices suddenly rose sharply due to a shortage of animals (a drop in the number of cows and epizootic diseases). Italian buyers are paying through the nose. Wouldn't this be **an opportunity to fatten dairy calves for red meat, and in particular for the minced meat that the market is demanding?**

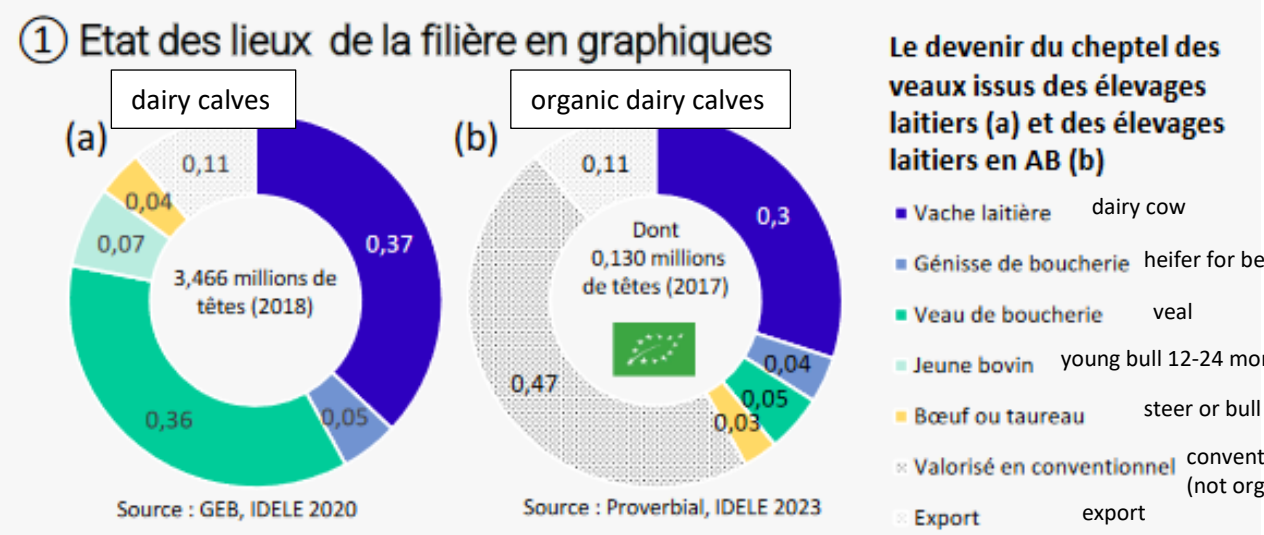
Hence **the experiments at the Mauron station to raise steers on grass**[106] . These are cross-bred male calves (**ValoVeau project**[107]) which arrive at around 23 days of age and are slaughtered at around 17 months, with carcasses weighing around 300 kg, well finished and marbled. Depending on the season of birth, they spend one or two seasons on pasture. However, the notion of "at grass" needs to be qualified: there is still 21-26% maize in the ration, and wheat and soya meal at 18-19%. Grass accounts for 50-60%, of which 32-40% is grazed, with an average daily gain of around 1,000g/day. This is still much more grazing than the traditional JB (Young Cattle, uncastrated, entirely in confinement). The technical result is satisfactory. Other breeds and crosses are being studied, including pure Holsteins. - A survey to find out whether farmers are motivated by this kind of production revealed interest and opportunities, but also obstacles; it's not for everyone. From our point of view, it would be excellent if grass-fed steers could replace both veal calves and JBs in confinement. The ideal situation is still grass-fed steers with 3 grazing seasons, whether for beef or dairy calves. The decline in grass-fed beef cattle (with 3 grazing seasons) in favour of young cattle crammed into pens and boosted with concentrates is deeply worrying; it's the dramatic result of a poorly managed, not to say perverse, agricultural policy. If any production deserves coupled aid, it is grass-fattening (whether for males, castrated or not, or females).

Organic farming has focused a great deal of attention on dairy calves from the point of view of adding value to them. The usual transfer of these calves to the conventional, industrial system is not satisfactory, either for the farmers or for the customers who risk discovering the scandal. A number of studies are underway, including one by Léa Vancouille[108] , which lists 4 issues concerning the future of dairy calves: their welfare, the profitability of the systems, their consistency in organic farming and the carbon footprint of beef. She has put together a number of ideas, and we will follow her presentation[70]:

[106] https://www.web-agri.fr/veaux-et-genisses/article/847926/l-elevage-de-bouvillons-a-l-herbe-donne-de-bons-resultats#:~:text=Les%20%C3%A9leveurs%20laitiers%20sp%C3%A9cialis%C3%A9s%20souhaitent%20majoritairement%20le%20rester.%20Mais%20certains raised on 13 November 2024

[107] https://idele.fr/?eID=cmis_download&oID=workspace%3A%2F%2FSpacesStore%2Ff132eae7-6575-4e63-9794-3cac914c0655&cHash=6a3f468773e29c1ac90059aeec627d78

[108] https://itab.bio/sites/default/files/medias/fichier/2024/07/devenir%20des%20veaux%20laitiers-synth%C3%A8se%20de%20pratiques%20pour%20une%20meilleurs%20valorisation_0.pdf



The average annual milk production of a cow inevitably leads to the production of 97 kg carcass equivalent of beef. Source: Dairy calf training course - Léa Vancoillie, 2023

One approach (**ValoVEAU-IDELE**) (see above) is to produce carcasses that are lighter than conventional JB, from dairy calves fattened as steers on pasture until they are 17 months old.

The PréVeau[109] **project** in Haut de France aims to find a solution for organic dairy calves by rearing them on pasture until they reach adulthood (steers or heifers). "*72% of the animals slaughtered received a fattening score of 3 solely on pasture and roughage!"* Note: *"20% of the animals were reared by a nurse cow, where growth performance was also 27% higher than for those reared on a bucket or teat."* The activity is considered to be fairly profitable: € 750 semi-net margin per ha of grassland for around 23 hours/animal fattened.

RenouVEAU-IDELE[110] (2020-2023) is researching and evaluating new ways of producing veal calves that take into account animal welfare, health and the environment. There are concerns about the structural decline in volumes and the attractiveness of the profession.
Strangely enough, they are always talking about so-called 'societal' demands from a distance, and the industry players seem to have an incomprehensible problem taking them on board. They are stuck on the rhetoric *of "economically efficient"* (for whom?) and *"providing quality products"* (according to what criteria? gastronomic heritage and luxury leather goods? or the health of people and calves?). On the positive side, welfarist NGOs have contributed to the project in terms of animal welfare and housing issues. So there was a dialogue and it is even mentioned, under **'going further'**, in the margin, a meat colour ≥ 2 (2 means light pink), access to grass, and late calf-cow separation (which remains to be defined!). However, the priorities of agricultural professionals and students are still quite distant from those of the welfarist NGOs.

Watch out, there's anger in the air...

The project includes a study of the effect of solid feed intake on the feeding behaviour and energy metabolism of calves. The aim is to determine the effects of substituting milk replacer for solid feed on protein and energy utilisation. It's just another hundred-thousandth study in the style of those who insist on feeding small (baby) mammals (rather badly) for the profits of an

[109] https://www.produire-bio.fr/articles-pratiques/engraissement-des-boeufs-au-paturage-ca-marche/
[110] https://idele.fr/renouveau/?eID=cmis_download&oID=workspace%3A%2F%2FSpacesStore%2Fee605f98-8e5b-469f-9490-749b4558a47a&cHash=61ea0e922d9ce20c62c4b78e71d79423

unscrupulous animal feed industry, by depriving them of what their nature intended. Iron deprivation again?!

Aren't zootechnicians who aim for light colours disqualified from the outset both for animal health and welfare and for the agro-ecological transition? And how can anyone draw the slightest conclusion about sustainable and ethical animal husbandry from calves locked up in respiration chambers? Stop it!

The reference system: the sad life of a calf. Some players are touting it as great progress in welfare because it has windows and ventilation. - Thanks for the image.

Then four interesting systems were tested, all of which offer considerable progress in terms of animal welfare. If there's a will there's a way! The problem is, as usual in the Technical Institutes, the reference system, which shouldn't even exist any more: closed, ventilated building, wooden slatted floor, 5 calves, 1.8m²/calf, milk in a bucket 2x/day, water in pipettes (contrary to the calf's natural way of drinking). It's disturbing to see that the people and above all the organisations who set up and supported this appalling system, with all its errors (and who made farmers believe in it and tell themselves stories to justify the system they are forced to practise), are now presenting themselves as those who teach animal welfare. That's progress.

But another interpretation is possible: are some technicians or engineers happy that they are finally being allowed to get away from certain abusive absurdities? A big THANK YOU to so-called societal expectations!

The results of these comparative tests, as presented in the webinar[111] , give rise to the following comments (based on the summary presentations published on the internet):

1) **Building with welfare optimisation**: the calves are Holstein x Blanc Bleu crosses, and Blanc Bleu should be excluded for ethical reasons.
    - the fodder in the rack is straw, hay would be preferable and healthier.
    - If, as a result, the welfare + + calves become less heavy, it may be that they are a little more normal than the control calves, which are subjected to conditions so restrictive that the only thing they can do is put on weight; it may be that the welfare + + group is making the most of the space it has; or it may be that these calves have digestive lesions like so many others who suffer the perversities of nutritionists. What does it mean *to stop feeding forage at D69*? What about milk refusal and competition at the automatic calf feeder? So an automatic milk feeder that is unsuitable for the number of calves? We need to know a lot more to interpret the results.

[111] https://idele.fr/renouveau/?eID=cmis_download&oID=workspace%3A%2F%2FSpacesStore%2Fee605f98-8e5b-469f-9490-749b4558a47a&cHash=61ea0e922d9ce20c62c4b78e71d79423

- carcasses classified as light pink... classification by colour must be automatically abandoned in a serious welfare approach
- for the same reason, it is absurd to measure haemoglobin
- trough or drinking pipette? I read 'pipette' correctly, for calves? it shouldn't exist! So says EFSA.

2) **Building with a small concrete courtyard**: male Prim'Holstein calves (very good ! the welfare is also for them, also for those who are worth the least!) Remarks: same as above.
    - Higher water consumption: trough vs pipettes? Climatic conditions ?
      Milk by the bucket 2x/day: not very suitable from an animal welfare perspective
3) **Fattened outside with covered pen and igloo with 10 calves** (25m² + igloo 14m²). Milk by the bucket. Prim'Holstein. Straw.
    - The search for clear carcasses is absurd. Replacing straw with sawdust to reduce iron intake through straw and "improve" colour is absurd.
    - no information on collective treatments

The economic study concludes that the cost of animal welfare management is much higher, mainly because of lower carcass weights and (on average) less favourable colour and conformation. What is needed is *"a price equivalent to or higher than carcasses from 'standard' management"*.

The result of these trials is that payment according to colour is a nonsense that prevents progress in animal welfare. In fact, any quotation that penalises normal, healthy, non-anaemic red calves on the grounds of colour must be banned.

Another RenouVEAU trial is studying the fattening of dairy calves on dairy farms. It also calls for a few comments.

1) **In igloo**: 166 days, around 2000 l/calf of whole farm milk (milk with cells) and around 200 kg of fibre feed.
   There were 21 days in isolation; that's bad!

The economic conclusion was a financial loss of €8,100 for 11 calves. The price paid on the long-supply chain was €4.88/kg of carcass. For direct sales (in the case of 2 calves) the price was €14/kg of net meat, or around €10/kg of carcass. The break-even point for selling veal is €11.65/kg of carcass. The break-even point for the milk given to the calf is €96/1000 litres. The calf drinks almost €200 worth of milk. In this case, it was milk with cells.

2) **Feeding cows on seasonal pasture**. The trial **at Mauron** involved 3 breeds and cross-bred males.
   Scandal: the carcasses were 'unsellable' on the traditional circuit or at knock-down prices; there was just one reason for this: the pink and red colour! There's no such thing as anaemia on grass.
   In direct parcel sales, the average value was €5.49/kg of carcass.

And here we go again! The result of these trials is that payment according to colour is a nonsense that prevents progress in animal welfare and sustainability (grazing).

Any quotation that penalises normal, healthy, non-anaemic red calves on the grounds of colour must be banned.

The RenouVEAU trial included the impact of these rearing methods on calf activity. Note: the term "game" is not entirely appropriate. It refers to the "use" of enrichment. Brushes, a scratching post, a dry teat... all have other functions. Unsurprisingly, calves ruminate much more on pasture. Very important: abnormal oral behaviours are present in all systems EXCEPT with nurse cows. That says it all.

Other trials are focusing on organic calves, such as **PREVEAU-BIO in Haut-de-France.**

Tripl'Scotch at INRAE du Pin aims to produce Angus crossbred Prim'Holstein, Normande and Jersey steers and heifers reared on grass. Important: they are castrated under general anaesthetic.

Herbo Pacte works with CHARAL for steers and heifers that are pasture-raised and sold in the "pasture-raised" range.

JA Gastronomie, the top-of-the-range Jersey, is aiming to sell >1,000 Jersey cull cattle and cows by 2024 (La Ferme des belles robes, youtube).

Terres de Sources is currently working on a project to protect water in the Rennes basin. Dairy calves could play a role here.

Etiquette Bien-Etre Animal (https://www.etiquettebienetreanimal.fr/en/) is a label to inform consumers on the animal welfare performance of animal products in a comprehensive way. It has an information tool on chickens and laying hens. The same approach would be very useful for calves - it will come, no doubt!

Other value-adding channels remain conventional, with a marketing slant :

- The **EJENDU** network set up by Interbev Bretagne produces young dairy cattle crossed Prim'Holstein x Limousin in conventional rearing with silage maize and cereals (Bigard).
- **VOLDIT** has been launched by Terrena Bovins for crosses between Prim'Holstein and Normande, with Denkavit (we know how miserable Denkavit's calves are), for a small bonus of €20/calf.
- **Verital Viande** is a Cooperl chain for fattening cross-bred heifers; it's performance and traceability, GMO-free and antibiotic-free from the end of weaning, so it's marketing for conventional products, with the aim of adding cattle to pig farms.

La Bille Bleue wanted to allow the calves to stay on the farm where they were born. Calves are reared on their mother's udder or by a nurse and weaned at 7 months at the earliest. It was an idealistic and ambitious project. But he had to close down his business because the economic model was not viable. It seems to me that at the outset the preparation of the project and the number of partners he could rely on were insufficient. We must not underestimate the difficulties of coordinating production, processing and outlets, which have to be developed simultaneously.

6.4. Leaving the calves with the cows: economically viable?

We are already aware that leaving calves with their mothers, and even with foster cows, has a significant cost, even if grass-fed rearing also generates savings.

The cost can be offset :

- ➔ **by higher milk prices**
- ➔ **by a higher price for the meat of the calf (or beef/heifer),**
- ➔ **by public funding for services rendered**
- ➔ **by correcting distortions of competition, ensuring that prices are more accurate, i.e. by incorporating the negative externalities of the dominant intensive systems into the price of products.**

Let's look at a few examples, firstly from France, and then from a number of other countries, which seem to have achieved the feat of being economically viable.

Let's take **IDELE's calculations for RenouVEAU**. The carcasses of veal calves reared on milk replacers were unsaleable on the long chain because of their red colour (not anaemic), so they were sold in crates. It is assumed that the calves drank 2,000 litres of milk. To be able to pay €373/1000l

for the milk consumed, the meat would have had to be sold at €14/kg. But it was sold at €12.4/kg, which corresponds to a milk value of €294/1000l, which is not satisfactory.[112]

We also have **calculations from INRAE**: when renewal females suckle their mothers freely for 9 hours a day between milkings, for 12 weeks, the cost of milk consumed would be less than 1 cent per litre of milk produced on the farm. However, this scenario was limited to rplacement females, leaving the other calves in distress, and contact with the mother remains limited. The fact remains that for a fully satisfactory system the extra cost would be much higher, but even in this case the extra cost for consumers would be low for a food of the nutritional quality of milk. The consumer pays for marketing arguments that are far more futile...

In the case of the Coccinelle project, the meat from the few male calves produced with the mother was sold in parcels at €14/kg, which covers the cost and makes the system viable.

We can assume that a calf with its mother drinks 2,000 litres up to the age of 3-4 months. As it grows older, it drinks more and more, since a dairy cow has relatively unlimited resources, unlike a suckler cow. Some restriction therefore seems economically unavoidable. I haven't found any economic data for calves that stay with their mothers much longer.

The following examples were found on the internet. There are approaches where the calves are with their real mother, but it is regrettable that there is often a blurring between mother and nurse.

- **BioAustria**[113] :
  Cows that are allowed to look after and nurse their own calves need more space and give less milk. This requires a higher milk price, which is estimated at +30%. Demand for products from farms with a mother-calf bond is increasing, and consumers are prepared to pay the price. Numerous studies show that over two-thirds of people are not informed about cow-calf separation, and once they are informed they reject it.
- **Cowpassion***: "There is a general consensus that a fair price that covers the costs of milk is CHF 1 per kg of milk at the farm gate. With mother-calf rearing, calves drink more milk, which is rewarded at Cowpassion by an increase in the milk price to CHF 1.30 (2024)."*

  A partner of Cowpassion**, the Muka** (Mutter-Kalb-Haltung) **association** provides practical, scientific and technical support for the development of milk production by keeping calves with their mothers.

  The association has published a policy document (with Cowpassion and KAGFreiland) which explains that to make this production viable, an additional CHF 0,30 per litre of milk is needed. Farmers regularly express an interest in leaving calves with their mothers, but are unable to commit until there is a guaranteed outlet, and the processing organisations or distributors are unwilling to commit as long as the volume produced remains too low - the cat is biting its own tail. Let's hope that, given the skills involved and the excellent training and communication work, the situation will improve. After all, the whole world needs a commercial success story that sets an example in this field.

  The association has also commissioned **an expert report on the definition of a dairy farming method that leaves the calf with the mother for at least 3 months**, and on what characterises the Muka model. Other approaches play on vagueness and confusion:

  - mixing rearing with the nurse and with the real mother

[112] https://idele.fr/renouveau/?eID=cmis_download&oID=workspace%3A%2F%2FSpacesStore%2Fee605f98-8e5b-469f-9490-749b4558a47a&cHash=61ea0e922d9ce20c62c4b78e71d79423 diapo 103

[113] minutes of a meeting held on 29/4/2024, by Dr vet Karin Keckeis

- mixing models where the calf is always free with the mother with models where the time spent together is more or less short, even very short
- mixing models where the time together is only 3 weeks with those where the time together is several months
- including farms where only some of the calves benefit from the mother, and the others (usually the males) are left to their fate
- and even passing off as 'calf with cow' models where the calf stays on the birth farm, but is never with the mother or a nurse.

At Muka, all the calves on the farm benefit from this, and it's always the real mother, and they spend at least half the day free together. The minimum duration of 3 months with the mother (but preferably more!) is explained by the fact that by 3 months the calf's immune system has matured. Weaning and gradual separation cannot begin before 3 months. Muka believes that the Swiss government should define and guarantee the designation of this method of rearing.

The report on Evelyne Scheidegger's farm shows a 30% loss of income; it should be noted that all the calves, male and female, stay with their mothers for **10 months**. This shortfall is offset by external income. The Muka cheese dairy was created thanks to crowdfunding by the Cowpassion association (capital of CHFr 300,000). The shareholders are mainly people who have taken out cheese subscriptions, a strong and motivating demand. Production would become profitable with 500 to 1,000 subscriptions per farm. And if production covered costs, several hundred dairy farmers would make the switch. There are 20 of them today. For the moment, there are (still?) no public subsidies. The Federal Council recognises the benefits for public health (lower use of antibiotics) and animal welfare, but is passing the quid to the private sector. Source: Muka Newsletter.

- **The PROVIEH** (For livestock) **association** is campaigning to keep calves with their mothers[114] . On its website, PROVIEH presents a list of initiatives marketing milk, dairy products and meat from "Mother Cow and Calves" initiatives. Each link below leads to specific information that would take too long to detail, so we'll limit ourselves to a few economic aspects below **(information collected mid-Nov 2024)**:
  - ✓ **"Zeit zu zweit**" der Demeter HeuMilch Bauern (Time for two from the Demeter dairy farmers)[115] : 35 farms in southern Germany. Demeter. Of course the cows have horns. According to Ig-kalbundkuh, whose specifications allow calves to be with their mothers and/or nursemaids.
  - ✓ "**Elternzeit für unsere Kühe**" (parental leave for our cows) von De Öko Melkburen[116] has won the national organic farming competition 2022. The video of the occasion explains: 150 cows, 300 "naturally happy" animals on 300 ha. The calves spend 3 months with their (real) mothers and grow up in the calf nursery. The group has invented Jahreszeitenmilch (milk for the four seasons, with the season printed on the milk) with the label "Elternzeit für unsere Kühe". All they ask for is the ecological potential of the cows: 4,500 to 5,000 litres of milk per year, the calves get around 2,000 litres, and there are 3,000 litres left in the tank for sale. Volunteers help out with the market gardening and direct sales, with or without meat. 40,000 litres per month are processed in the dairy. The milk contains 4% fat. In 2013, the dairy was threatened with closure. They found over 300 members, consumers, who invested in the dairy. > 500,000 was invested in separate tanks for organic milk.

    NDR broadcast a report (2020) on Willy, a male calf[117] . 30 dairy cows, 100 ha, viable. Mobile milking in the pasture, only one milking a day. On the 3rd day after birth, Willi's mother is milked

[114] https://www.provieh.de/kampagnen/kuh-und-kalb/
[115] https://www.heumilchbauern.de/
[116] https://deoekomelkburen.de/
[117] https://deoekomelkburen.de/

again. The first month Willi drinks half his mother's milk, and the 2nd and 3rd months he drinks it all. This is why this milk is more expensive: 1 litre costs between €1.80 and €2.30. At 3 months they are weaned, first at nose-flap and then separated from the mother to live in the meadows with the youngsters.

- ✓ **Baldauf Käse** (cheese) has a strong focus on reducing the environmental footprint of processing and making cheese from hay milk. Few cheeses come under the IG Kuh und Kalb label, and only a handful of producers comply with these specifications. The aim is to convince more farmers to adopt this animal welfare practice.
- ✓ **Bruderkalb-Initiative Hohenlohe**[118] (Brother calf initiative): around 40 Demeter and Bioland farms in Baden-Württemberg. According to IG Kalb und Kuh. They were awarded the prize in the national organic farming competition 2021.
- ✓ **Weideschuss Bio GmbH**: most calves meet their mother or a nurse several times a day for at least 12 weeks. Fattening takes place in the pasture. They are slaughtered in the pasture, shot in the head, bled and transported in a mobile box. The project is subsidised under the federal 'Organic farming and other forms of sustainable agriculture' programme.
- ✓ The **"Hamfelder Hof"** farmers' group[119] in Schleswig Holstein comprises around forty small and medium-sized farms with a maximum of 160 dairy cows, and has its own Bioland dairy. The dairy is the key to developing the farms in line with ecological farming and the values of the group's members. The group has ambitious targets for biodiversity and aims to rear all its calves with their mothers. To ensure the future of the families, the price of milk has already been increased by 20 cts.

- ✓ **Glaces Rachelli**: A leader in organic desserts and organic and biodynamic ice cream, Raccelli uses "Zeit zu zweit - für Kuh und Kalb" milk, available in organic shops in Germany.
- ✓ **Luisenhof Milchmanufaktur**: its various products include milk from calves reared with cows and, it seems, mainly with sucklers.
- ✓ **Hofgut Eichigt**: certified according to IG Kalb und Kuh: all the calves are reared by wet-nurses. Sold in organic shops.
- ✓ **Terra Naturkost**: this is an organic wholesaler. Kuh & Kalb organic milk comes from farms where the calves are reared with cows or milk replacers.
- ✓ **Alnatura**, a major German organic producer for long distribution channels (at prices significantly lower than French products), markets fresh "Kuh & Kalb" milk at a price of €1.89/L (pasteurised, keeps longer). *"When you buy this milk, you are supporting the conversion to rearing calves with their mothers ... [this milk] comes from Bioland farms in northern Germany, which have set themselves the goal of implementing new standards in animal husbandry".* This product is also

[118] https://bruderkalb.wordpress.com/
[119] https://hamfelderhof.de/

part of the 'fair prices for our dairy farmers' initiative. A second "Kuh & Kalb" fresh milk product in returnable bottles is also labelled "hay milk" and costs €1.99 per litre. Alnatura says it is committed to fair prices with the "Fair prices for better animal welfare" initiative, indicated by a red corner on the pack.

- ✓ **WIR** (Us) **Bodensee-Weiderind**[120] : Demeter dairy farmers and farms that fatten on pasture cooperate so that dairy calves can first suckle in a herd of cows for almost half a year and then grow up in their region, on pasture, and be slaughtered nearby at the age of 24 to 30 months. "Bruder-Tierwohl" (brother-animal welfare, an approach known for the brothers of laying hens) means that the male calves also have this chance to stay with the mothers first and then be fattened up in the region. There is also a sustainability objective with the "feed no food" principle, so these young meadow cattle eat mainly grass. Demeter farms select mixed breeds, including some Limousin and Hereford crosses. Male and female calves are allowed to drink for around 4 months with their mother or a nurse. The approach is subsidised by Baden-Württemberg ("Bio-Muster-Region Bodensee").
  The main aim is to control the entire chain, giving the animals the best possible life: birth and fattening on pasture, slaughter and processing, all in the region. Farmers can influence the process to ensure that it runs as smoothly as possible. There is a wholesaler.
  When you produce 1 litre of milk, you also produce 25g of meat (calves and cows); they want to raise awareness of this fact and encourage people to eat the meat from this grass-fed production, not just the delicious cheese. They also have a large number of pigs that consume the whey, which would be the best use for it.
  According to the group's communication, if arable land were shared out fairly, each person would have 2,000 m² of land to feed themselves, but in addition each person would have 4,500 m² of grazing land[121] - that's a great plea for cattle farming!

Finally, there's **the example of the farm run by Benoît Biteau**[122] , an ecologist MP. According to him, leaving calves (and kids) with their mothers until they are weaned is "not a bad idea" from an economic point of view. That's what he is doing. The savings in terms of labour are enormous, and the savings in terms of investment (automatic calf feeder…) and expenditure (milk feed for calves) are considerable. With once-a-day milking, he takes the milk that's left over and processes it all, which he says generates a turnover of €10 per litre of milk. He offers a pension to his old breeding animals. All of this in generous areas of protected nature thanks to extensive grazing. A realistic utopia has become reality.
Surprisingly, he doesn't seem to put much emphasis to communicate on keeping calves with their mothers. His website doesn't really explain it. It's essential, though, to show a future for livestock farming.

6.5. A summary by INRAE researchers: making the most of dairy calves

Veissier, Schenkenfelder and Pomiès (2023)[123] publish their opinion **that improving the value of male dairy calves could lead to them being better cared for and treated** from birth. Their starting point is the observation that the mortality rate of male dairy calves is significantly higher than that of females, and higher than the mortality rate of beef-breed males. This is linked to their low value.

[120] https://www.wir-bodensee.bio/produkte/weiderind/
[121] https://www.youtube.com/watch?v=T83ZXdWDeXw
[122] https://www.val-de-seudre-identi-terre.com/
[123] Opinion paper: Increasing the economic value of male calves from dairy herds to avoid poor animal welfare https://hal.inrae.fr/hal-04196972v1/document

Secondly, a better sale price at slaughter could finance the improvement of rearing conditions. The following solutions could be combined:

- The first recommended solution is to lengthen lactation so that there are fewer of these calves, which would increase their value. This seems feasible, realistic, beneficial and acceptable. The idea here is to lengthen the calving interval to 15-17 months.
- The second is labelling so that the price of milk covers the costs associated with calf welfare.
- The third is to use sexed semen to obtain replacement females, and crossbreeding with meat breeds for the others, in order to give the calves value, but if there are too many of them there is a risk that they will compete with meat from suckler breeds.
- The fourth is to slaughter calves at a younger age, e.g. 13-16 weeks (instead of 26-35 weeks), which would remove excess meat from the market and make it easier to keep male calves on dairy farms. The idea is to shorten the calf's life in exchange for a better life.
- The fifth is the introduction of mixed dairy-meat breeds, which would solve the problem of low-value calves.
- The sixth is to reduce the consumption of animal products, thereby reducing the number of animals exposed to poor living conditions and making available parts of the consumer budget to buy more expensive 'welfare' products.

The authors are convinced that the sectors should discuss these options and work together and with society to find solutions to give all male calves a good life while giving them an appropriate economic value.

That says it all - or almost; we can add that the best possible life for a calf would be to allow it to stay with its mother in the pasture... Ideally, labelling should cover keeping the calf with its mother. While some dairy calves could be slaughtered at a younger age, others could ideally be fattened up with two or even three seasons of grazing.

The dairy and meat sectors therefore need to put these solutions in place together, without forgetting that this must be linked to a redeployment to pasture and also to a voluntary reduction in livestock numbers, which is a painful and often taboo point, but one that is nonetheless unavoidable.

7. Conclusions: campaigning for dairy calves?

All the information and thoughts gathered so far give rise to the hope that a campaign for the protection and welfare of dairy calves and their mothers can be founded.

As far as this work is concerned, **the conclusions for a campaign for dairy calves are as follows**:

Dairy calves are a key issue for the future of cattle farming. This concerns the balance between milk and meat production, competition between the suckler and dairy sectors, the number of cattle and their environmental impact, the choice to be made between intensification and extensification of livestock farming, feed-food competition, the future of grasslands, biodiversity and landscapes, as well as the entire food system and its impact on human health and the environment, the human-animal relationship, farm incomes, and ultimately the choice to exceed or respect global limits. The well-being - or rather: the 'point of view' - of the animals concerned is a central and priority issue.

The sentient living being is more important than the carcass.

There are good reasons for thinking that it is more affordable and more realistic to achieve a very high level of animal welfare, and in particular to respect the natural bonds between individual animals, by rearing cattle than by rearing pigs or poultry.

Pigs have behavioural needs that are complicated to satisfy, and the high prolificity of sows is an ethical impasse (not to mention the technical perversities). Raising pigs to a very high welfare standard outdoors is possible and desirable, but incompatible with mass production.

As for **poultry**, they suffer from hyperproductivity and high densities. Also, chicks never have adult conspecifics, given the extreme industrialisation of their reproduction, and it's hard to see how we can return to something more natural. In short, the very high proportion of pigmeat and the growing proportion of poultrymeat in the human diet are indefensible, both from an environmental point of view and from the ethical point of view of animal welfare. From both these points of view, the beef sector has promising potential.

But we still need to accept "LESS and BETTER".

The dairy industry and dairy farms must take full responsibility for the fate of the dairy calves they bring into the world, from birth to death of these calves.

A campaign for dairy calves should aim for overall consistency:

- **a general objective of "LESS and BETTER" for livestock farming (milk and meat),** in view of the impacts and externalities generated, to build a healthy and sustainable food system
- a **return to pasture** for all categories of ruminants, with particular attention to **biodiversity**
- **improving the welfare of all categories of animal, especially dairy calves**, which are the focus of this survey.

Improving the welfare of calves should be achieved in two ways.

- On the one hand, it must take place **within the current dairy system itself**, with significant and rapid improvements in terms of **housing** and **feeding**, as described in the text (under 5.). Such improvements have been the subject of discussions between welfarist NGOs and the industry,

but their ambitions have been limited and have undoubtedly failed. In the light of the EFSA report and the pending revision of European legislation, we can expect developments along these lines, which the industry will try to slow down or at least to obtain a price for.[124] However, CEJA (European Council of Young Farmers) is ready to see animal welfare as an opportunity, and stresses the importance of learning about welfare; it is a valuable promise for the future.

➔ It is essential to **abandon any constraints and/or incentives that encourage the light, anaemic colour of veal** (see 3.3).

- On the other hand, and in parallel, it is a matter of expressing, as a **strong societal demand**, scientifically founded and morally binding, that it is **essential to build another dairy production system that is no longer based on the separation of the calf from its mother and on the denial of the maternal bond. Separation is a serious deprivation affecting both cow and calf**. **The rearing of female and male calves by their mothers** must be the subject of **sustained research** and **effective funding**. Cattle are designed by nature to live in a stable herd.

Let's not be afraid to tell the truth and show the innovations that can re-humanize livestock farming while integrating it harmoniously into ecosystems and planetary limits.

Five approaches in particular should be supported:

- **Keeping dairy calves on their farm of birth** as an essential step in the right direction. This addresses a number of problems, including the abominable long transport times for calves, and conditions and facilitates progress in the longer term, even if it means developing partnerships between local and neighbouring farms. By abandoning the grouping of calves from different origins and eliminating the stress of transport, we can save a lot of antibiotics and reduce antibiotic resistance.
- **Keeping calves, both male and female, with their mothers**, as an objective of excellence and a condition of ethical milk production.
- **Fattening non-replacement dairy calves in grassland systems with two or three grazing seasons**, which is all the more relevant as France and Europe seem to be in demand for red meat and the consumption of veal calves is falling. As a result, the weight per animal can rise sharply, so much the better if their numbers are falling.
- **Extending the lactation period of cows** is the subject of effective research and promotion, because it can solve a number of problems, including making the farmer's job easier with fewer calvings. And it's the best way of reducing the number of unproductive animals (in the name of the climate...). Fewer calves will increase their value.
- **A reduction in the consumption of animal proteins, balanced between dairy products and meat, so that all animals graze for several seasons.**

Broad awareness of all these issues and the potential solutions is essential if we are to build relevant and effective tools to ensure the **economic viability** of a production model that takes account of and **respects the maternal bond of mammals and their health**, in a sincere and non-hypocritical application of the **"One health" and "One welfare" principles**.

[124] This is in the light of their responses to the European Commission's consultation on the initiative to review animal protection regulations in July 2025. https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/14671-Bien-etre-de-certains-animaux-delevage-modernisation-de-la-legislation-de-lUE_fr

Support should

- **as a priority, help for successful implementation on farms, both by pioneers and by voluntary collective initiatives**
- **adapt the regulatory framework, so that it does not stand in the way of such initiatives, but rather encourages support for them**
- **finance research**

Local co-construction[125] will play an important role in bringing about organisational changes that take account of the health and welfare of animals throughout their lives. Such opportunities are offered by the actions of local authorities and water agencies in favour of grasslands; it is high time that these players felt concerned by the issues of ethics towards animals and environmental consistency, and that they integrated animal welfare into their programmes.

More broadly, our food systems should be the subject of **democratic debate**, including the place of animal products in our diet. [126]

The CAP, state subsidies, research grants and private initiatives offer a wide range of funding options to support these objectives: cross-compliance, eco-regimes, intelligent re-targeting of coupled support, regional support with selection criteria based on animal welfare, sustainable and ethical regional projects, the general integration of animal welfare into the water protection strategies of the Water Agencies and the energy strategies of ADEME, coherent and holistic labelling, and so on.

The challenge will be to direct budgets in a sufficiently ambitious way to ensure a sustainable, coherent, holistic and non-regretting transition, i.e. to direct budgets under pressure towards breakthrough and hopeful changes rather than allowing them to be swallowed up by business as usual, which means spending money that will ultimately be regretted.

To ensure the quality of the societal and political debate, we need **forward-looking studies and impact assessments**, including those to be carried out by Europe, with a coherent and holistic vision, taking into account in-depth system changes and all the environmental, welfare and socio-economic impacts of a return to grass for calves and all female and male cattle.

[125] Christian Ducrot et al: Jointly improving animal health and welfare in the transition of farming systems towards sustainability. INRAE Prod. Anim. 2024, 37(3), 8149

[126] idem