FitchSolutions

Planet Tracker

# Cattle are More than just Beef

Dairy Cattle's Ecological Footprint Material to Investors as US and EU Policies Adjust

## ANALYST NOTE

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## ABOUT PLANET TRACKER

Planet Tracker is a non-profit financial think tank aligning capital markets with planetary limits. It was launched in 2018 by the Investor Watch Group whose founders, Mark Campanale and Nick Robins, created the Carbon Tracker Initiative.

Planet Tracker was created to investigate market failure related to ecological limits. This investigation is for the investor community where other ecological limits, in contrast to climate change, are poorly understood and even more poorly communicated, and not aligned with investor capital.

## FOOD AND AGRICULTURE TRACKER

Food and Agriculture Tracker investigates the natural capital impact that equity funds have in financing publicly traded food and agriculture companies.

Our aim is to align capital markets with the sustainable management of global food systems and agriculture resources.

## ACKNOWLEDGEMENTS

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## Dairy Cattle: Big Ecological Footprint with Billions in Market Capitalisation

Despite accounting for less than 9% of global agriculture's market value in 2016 – compared to 22% for the meat industry,[i] dairy is an important sector in both developed and emerging markets' economies. 2016 estimates from the FAO suggest that a quarter of all farms worldwide keep at least one milking animal, which might include cows, goats, buffalo and/or sheep with dairy related employment from farm to fork in the hundreds of millions.[ii, iii] Moreover, dairy milk, including cow and buffalo milk, was the world's most traded agricultural good by value as of 2013.[iv] Milk provides an important source of calcium, magnesium, protein, and vitamins B5 and B12 for as many as six billion people.[v]

And, as shown in Table 1, the dairy sector is large, estimated for February 2020 at a market capitalisation of approx. $278 billion with 176 companies involved in dairy production and product development, including all publicly traded companies exposed to dairy production. Yet, four of the seven largest dairy companies in the world are co-operatives – Fonterra, Friesland Campina, Dairy Farmers of America and Arla Foods – and, by definition, are not included in this snapshot.

*Table 1: Planet Tracker's Total Global Dairy Sector Publicly Traded Companies, February 2020. Source Bloomberg.*[vi]

| Sector | Total Publicly Traded Companies | Total Market Capitalisation (USD billions) |
|---|---|---|
| Dairy Cattle and Milk Production | 37 | $45.6 |
| Butter | 4 | $6.6 |
| Cheese | 20 | $13.0 |
| Dry & Condensed Dairy Products | 28 | $69.0 |
| Fluid Milk | 44 | $97.9 |
| Ice Cream | 29 | $40.4 |
| Dairy Products Wholesalers (excluding Dry and Condensed Dairy Products) | 14 | $5.8 |
| **Total** | **176** | **$278.3** |

*Note: Calculated employing Bloomberg Industry Classification System categorization and summing all companies in dairy related industries, including both companies whose primary classification is in dairy related industries and companies classified as having partial dairy industry exposure.*

Given the dairy sector's global scale, the industry has a large ecological footprint.

Dairy cattle consume annually 2.5 billion tonnes of feed, including human inedible pasture and straws. Dairy cattle are responsible for 40% of livestock's total GhG emissions. Dairy cattle contribute one-sixth of total agricultural GhG emissions or 3% of the world's total GhG emissions as of 2015.

At about one billion hectares – similar in size to China or Canada – dairy farming utilises 7% of the world's landmass, of which 85% is pastureland, a key component of a country's natural capital.

Consequently, the effects of dairy farming, especially if paired with poor environmental practices, can affect not just local ecosystems but the economy up to and including a country's sovereign health, as demonstrated in Planet Tracker's recent report *The Sovereign Transition to Sustainability: Understanding the Dependence of Sovereign Debt on Nature*.[vii]

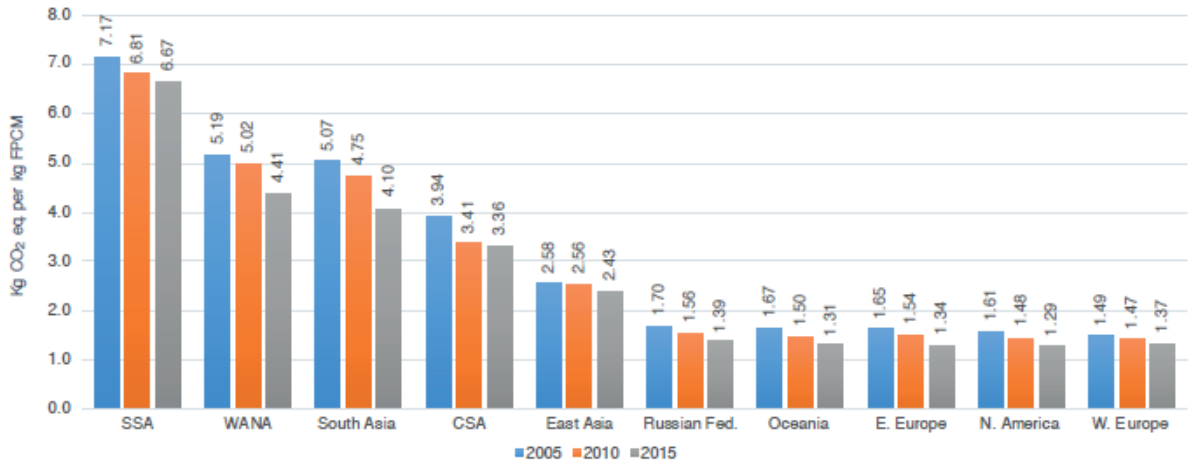


*Figure 1: Trends in Emission Intensity of Milk by Region (2005, 2010 and 2015).*[viii]

*Note: SSA is Sub-Saharan Africa. WANA is West Asia and North Africa. CSA is Central and South America.*

With the passage of the 2015 Paris Agreement that accelerated global efforts towards a low carbon future, and the fact that livestock production emits in aggregate more GhG per kilogram of protein than many other food sources,[ix] the dairy sector will play a key role within agriculture towards achieving carbon neutrality.

As shown in Figure 1, the dairy sector's emission intensity, broadly defined in the dairy sector as GhG per kilogram of milk, fell by 15% globally from 2005–2015 due to increased production efficiency. The increased efficiency has been occurring worldwide, and is mainly a function of improved animal genetics, disease control, animal and grassland management, and better feeding practices. For example, when diseases are reduced in cattle, emissions intensity generally decrease as healthier cattle produce more milk and have lower emissions per unit of output.

Yet, total emissions from the dairy sector are still rising, mainly because overall milk production has risen approx. 30% from 2005–2015 in response to dietary changes and rising living and dietary standards in emerging markets, especially in Asia.

Moreover, methane – which has roughly 21x more global warming potential than CO2 by weight – accounts for between 51% to 67% of global dairy emissions.[x]

This points to an urgent need to accelerate the sector's sustainability response to prevent climate tipping points, and will be a function of improving efficiencies, sequestering carbon, and linking dairy to the bio-circular economy. This is not impossible. Researchers from Wageningen University in the Netherlands have shown that it is theoretically possible to increase milk production by 40% while decreasing GHG emissions by 40% as well.[xi]

## EU and U.S. Policy Proposals Could Accelerate Shift

New policy proposals in both the EU and U.S., two of the world's most advanced dairy markets, will give the sector a push over the coming years. In the US, the dairy sector stands alone as the only U.S. sector to have both increased production from 2005–2015 while also decreasing absolute emissions. But U.S. dairy cattle still produce the most emissions of any dairy cattle in the world and potential new policies may ultimately put a strain on the sector.

For example, U.S. Department of Agriculture Secretary Sonny Perdue, in a notable public break from the Trump Administration, announced at the US Ag Forum on February 20, 2020 support for carbon pricing as a way to encourage farmers to innovate and increase productivity.[xii] The goal would be to ultimately cut the U.S. agriculture sector's environmental footprint in half by 2050.[xiii]

This policy specifically calls for:

- *Carbon Sequestration and Greenhouse Gas: Enhance carbon sequestration through soil health and forestry, leverage the agricultural sector's renewable energy benefits for the economy, and capitalize on innovative technologies and practices to achieve a net reduction of the agricultural sector's current carbon footprint by 2050 without regulatory overreach.*
- *Multiple pathways exist to achieve this goal, including promoting innovation and new technologies and practices to improve fertilizer and manure management, capturing biogas, improving livestock production efficiency, conserving sensitive and marginal lands to enhance carbon sinks, reforestation and responsible forest management to prevent wildfire, maximizing the benefits of renewable energy through improved efficiency and carbon capture, and encouraging soil health practices such as no-till to sequester carbon.*[xiv]

Depending on the outcome of the U.S. election in November 2020, the sector could face more targeted action. Democratic Presidential candidate and former Vice-President Joe Biden and former candidate Elizabeth Warren both put forth specific that aim to reduce agricultural carbon emissions by 40% by 2030 and achieve agriculture sector neutrality as early as 2045.

Yet as shown in Figure 2, while productivity and innovation are needed in the U.S. dairy sector, it may also have limits. Research from the FAO suggests that emission reduction from increased milk yields become limited once annual milk yields reach 5,000 kilograms per animal. U.S. yields are already 23,000 kilograms per animal.

This suggests that, even if U.S. dairy sector productivity doubled from here, the reduction in emission intensity would be relatively minimal. Moreover, given that the rest of the U.S. agriculture sector is already very efficient, this suggests that – *assuming each U.S. agriculture sub-sector would reduce its own emissions by 50%* – realistically only a potential reduction in dairy cattle numbers, and ultimately production, may be able to fulfil these objectives.

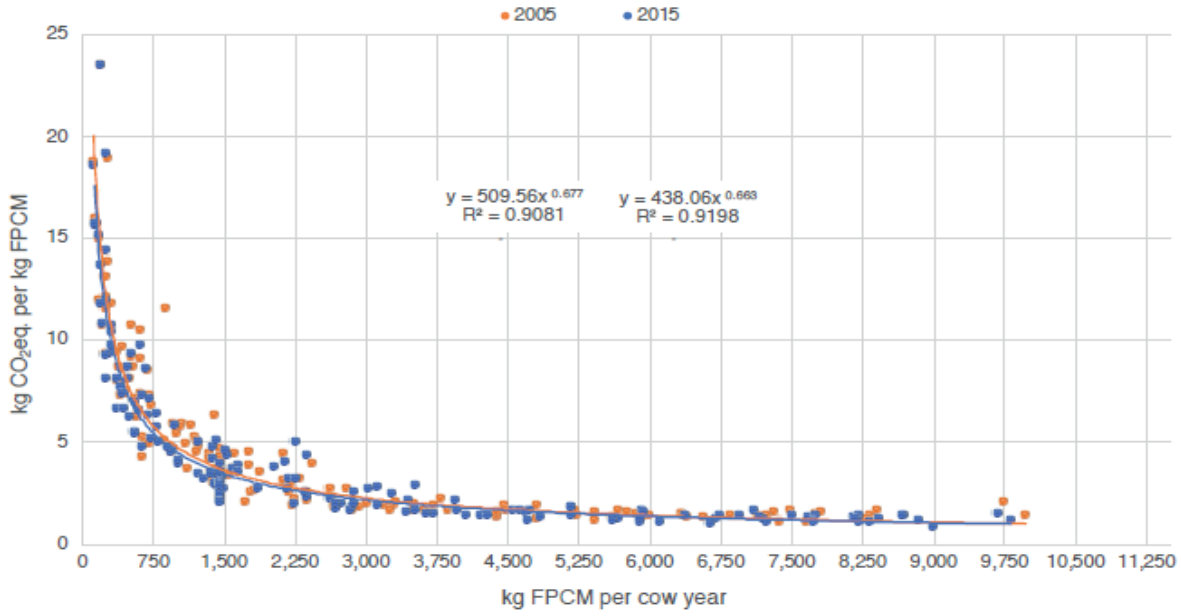


*Figure 2: Emission Intensity and Milk Yield.*[xv]

*Note: Each dot represents a country. The fitted line clearly indicates an inverse relationship between milk yield per cow and emission intensity* ***(kg FPCM per cow year on the x-axis versus kg CO2e per kg FPCM on the y-axis. FPCM is fat and protein corrected milk),*** *i.e. as milk yield increases there is more milk to spread the emissions over.*

In the meantime, some consumer-facing companies are moving ahead. Starbucks, which says that dairy products are the biggest source of its CO2 emissions, is targeting a 50% reduction in carbon emissions by 2030. A key component of this will be pushing consumers towards environmentally friendly alternative products like almond, coconut or oat milk, according to Starbucks CEO Kevin Johnson.[xvi]

Elsewhere, Canadian dairy giant Saputo is targeting an acquisition of a plant-based milk business by the end of the year, as it responds to shifts towards alternative products.[xvii]

Many in the U.S. dairy sector are attempting to resist the shift by lobbying for labelling legislation that would restrict the use of the word "milk" to only animal-based products,[xviii] which may be a case of "too little too late" as dairy consumption in the U.S has been decreasing for decades, leading to two of the U.S. largest dairy processors declaring Chapter 11 bankruptcy in 2019.

Yet others in the U.S. are embracing the business opportunities presenting by aligning reduction in impact with product branding. For example, on 3 March 2020, Danone-owned Horizon Organic, one of the largest USDA-certified organic dairy brands, committed to a carbon-positive supply chain by 2025 by investing $15 million re-equipping its 600 dairy producers, improving soil health, optimizing energy and using animal feed additives such as, potentially, adding ocean algae or seaweed to feed to decrease methane emissions.[xix]

Looking ahead, Fitch Solutions' Consumer Team expects further expansion (by traditional dairy companies) into plant-based dairy alternatives and forecasts alternatives to increase market share from currently around 13% of the dairy market over the medium-term. Lab-grown dairy products are also on the horizon.

In the EU, similar policies are also being developed via the European Green Deal, which is part of the European Commission's strategy to implement the United Nations Sustainable Development Goals. The Green Deal targets transforming the EU economy to GhG neutrality by 2050.

The exact policy mechanisms regarding the dairy sector will likely be fleshed out further when the European Commission presents separately its 'farm-to-fork' and biodiversity strategies in Q2 2020, which will lead to legislation being introduced in 2021 and likely coming into effect in 2023.

As well, the European Commission's latest Common Agricultural Policy proposal, which will likely come into force in 2021, requires that 40% of overall CAP budget will contribute to climate action, reduce the environmental impact in the food processing and retail sectors, and give consumers better information through potential labelling changes.

Other broader changes could affect the European dairy sector as well.

For example, the European Commission will present a renewed sustainable finance strategy in Q3 2020, which, among other things, will force companies to increase climate and environmental data disclosure. Moreover, the EU will use trade policy to support its ecological platform. As an example, the European Commission will propose to make the Paris Agreement an essential element for all future comprehensive trade agreements, while upcoming bilateral summits with China and Africa will put environmental issues front and centre.

## Investor Guidance

With the global dairy industry under the radar, yet with a large ecological footprint and hundreds of publicly traded companies involved in the industry, investors need to be aware of pending EU and US policy changes that may impact the dairy industry. Product substitution and innovation are not just on the horizon, they are here today with some dairy companies entering bankruptcy and others embracing natural capital limits to maintain their market share and grow their business.

## Disclaimer

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