

Reducing Emissions in the Dairy Supply Chain – CSA Booster

Summary

Dairy production is a significant contributor to global greenhouse gas emissions. This is a major focus for CSA Booster, which has a number of projects addressing the issue. This year, South Pole Group began a project under Climate-KIC's Climate Smart Agriculture (CSA) Booster Flagship Programme to explore how new technologies and interventions could be used to reduce emissions within the dairy supply chain of a major chocolate producer. The project will work with the firm's suppliers in markets around the world to match and pilot the best-suited technologies and practices in each context: modern feed additives, for example, can reduce methane emissions from cattle by 10 to 30 percent, while increasing milk yield at the same time. Jointly with their suppliers, the company can then scale these approaches throughout its dairy supply chain, while the knowledge gained over the project's lifetime can thereafter be applied elsewhere.

Key Points

- Dairy production is responsible for four percent of global manmade greenhouse gas emissions
- A team led by South Pole Group, funded by Climate-KIC's CSA Booster Flagship Project, is exploring ways to reduce emissions in the dairy supply chain of a major chocolate producer
- Using the CSA Booster's experience and network of experts, the project will identify and pilot technologies and practices in a handful of markets around the world
- Once these approaches are tested and fine-tuned, the company will be able to scale up its investment in emission reduction along its extensive dairy supply chain

Project Background and Drivers

The world's dairy industry accounts for around four percent of manmade greenhouse gas emissions. In 2007, the sector was responsible for emissions equivalent to almost 2 billion metric tonnes of CO₂, 93 percent of which was produced before any dairy products had left the farm gates, according to the FAO.

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Methane – produced by cattle's digestive systems – accounts for just over half of the greenhouse gases emitted by dairy production. Nitrogen dioxide (NO₂), a greenhouse gas 300 times more potent than CO₂, released during the application of manure, accounts for around one-third. New technologies and farming methods, including feed additives for cattle and using manure for biogas production can be deployed to bring these numbers down, and corporations with extensive supply chains have the capacity, in theory, to make sizeable dents in this sector's emissions. But those companies often lack the necessary expertise to both identify and source appropriate technologies and interventions, and to embed them in their suppliers' operations.



Project Detail

Earlier this year, global sustainability solutions provider South Pole Group began a project, co-funded by Climate-KIC's CSA Booster flagship programme, to explore methods of reducing the greenhouse gas emissions and how to implement those reductions in the global dairy supply chain of a major chocolate producer.

The company has ambitions to considerably reduce CO2 emissions along its dairy supply chain. While it has plenty of expertise when it comes to cocoa, and has for some years successfully invested resources in making its cocoa supply chain more sustainable, this, however, is relatively new territory.

"For them, climate change mitigation in dairy is a new field," says Tilmann Silber, practice leader sustainability action and water at South Pole Group and finance service lead for the CSA Booster Flagship Programme. "They are at the beginning of their journey. The CSA Booster is a great partner to support them along this journey."

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"Our vision is that the further we can help them understand what can be done, what the best solutions are and the impact they can achieve through this, the more investment-ready it will be for them so they can take over the programme and scale it up themselves," says Silber.



The company's dairy supply chain spans the globe, and the project team has initially selected a handful of markets around the globe that it believes are representative of the firm's operations.

Knowledge Sharing

CSA Booster can provide a range of knowledge and expertise to support the company and its suppliers in reducing supply chain emissions. To help reduce methane emissions from cattle, for example, adding lipid supplements made from linseed or cottonseed oils to their feed could be an option; these make the fermentation process within the cow's stomachs more efficient and less gassy, and can boost productivity, too.

Better animal management practices can also help. Improving herd fertility and the productive lifespan of milk cows through dietary changes and breeding techniques mean fewer livestock and less methane. Composting manure, using it for biogas production or even changing the timing of its application to fields can bring down NO2 emissions.

The project team is also looking at reducing CO2 emissions through the use of renewable energy, for example, or more efficient machinery. Deciding on which new approaches to deploy is only half the battle, however. The second, equally crucial challenge is how to integrate these into the suppliers' operations. Large corporations often operate well upstream in the supply chain, Silber explains, some distance from the producers who will have to make these adaptations.

"How should corporations influence and interact with their suppliers and move them forward?" he says. "There are different options, and they have to be customised to the context." There is a broad spectrum of approaches, from signing producers up to a new procurement policy, with conditions built in, to offering financial incentives for reducing emissions.

"And in between those approaches, there are different ways we are exploring. Are there projects that increase productivity in a sustainable way?" Silber asks. "These financial models are coming up and it's an interesting way to engage with the supply chain. It's a big field of questions, and there is a lot to learn and develop in this area."



Climate-KIC's involvement

The financial support and the expertise provided by Climate-KIC and its flagship CSA Booster programme are crucial to get projects like this off the ground. "The funding helps to de-risk the project for the company," says Silber. "We can help them with building their capacity and knowledge and help them realise their ambitions."

The Booster has much more to offer than knowledge on CSA technologies, he adds. It is also a broad network of organisations that includes some of Europe's most important research institutes, which can be leveraged as part of projects like this. "That way we can provide much more value than just a list of solutions."

What's Next?

The project is two months old, and the team is doing some preliminary scoping. "After that we will elect the technologies, engage with the suppliers and start piloting," says Silber. After that, the company should be ready to start implementing and scaling up these interventions in the second half of 2017. But it's not just this chocolate producer that will ultimately benefit from the project's findings.

"The knowledge we are building up on this project is global," says Silber. "This is a good thing for CSA Booster, too – we cannot of course use this company's commercial secrets, but we can use the understanding we are building up here on other projects."

About Climate-KIC

Climate-KIC is the EU's largest public private partnership addressing climate change through innovation to build a zero carbon economy. We address climate change across four priority themes: urban areas, land use, production systems, climate metrics and finance. Education is at the heart of these themes to inspire and empower the next generation of climate leaders. We run programmes for students, start-ups and innovators across Europe via centres in major cities, convening a community of the best people and organisations. Our approach starts with improving the way people live in cities. Our focus on industry creates the products required for a better living environment, and we look to optimise land use to produce the food people need. Climate-KIC is supported by the European Institute of Innovation and Technology (EIT), a body of the European Union.

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Sustainable Land Use

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