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Can reducing emissions be the boosting dairy industry's productivity?

India is home to 126 million productive cows and buffaloes, making the co milk producer in the world. Yet, as mentioned in the February 2024 Budge productivity or milk production per animal remains low.

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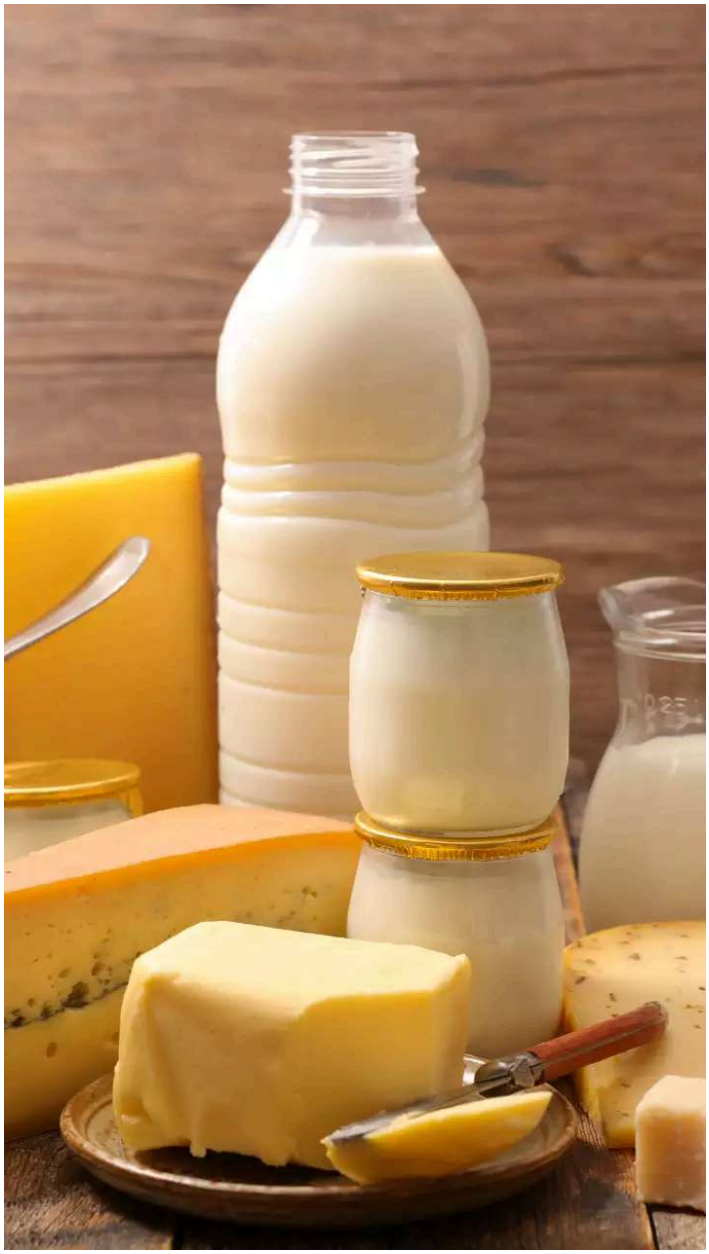

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average of 1,550 litr
per year, as against
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Rearing these exoti
in India might not b
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their extreme susceptibility to diseases in our climatic conditio

However, tackling the emissions from the dairy industry could l solution to this issue. A study by Agriculture and Agri-Food Can shows that reducing methane emissions from the dairy industry could increase milk yield by 1 litre per day per cow. This could r additional 38,000 million litres of milk per year or an increase i by INR 2.2 lakh crore per year for India.

Emissions from dairy cattle

Dairy cattle are a major source of greenhouse gases (GHGs) suc carbon dioxide, methane, and nitrous oxide, which are primaril produced during their digestion and maintenance. Among these fermentation is the most prominent source of emissions, accou 75% of the emissions (from the Indian dairy industry) as per esti the National Dairy Development Board (NDDB). Enteric ferme refers to a digestion process in which bacteria present in the an break down feed, generating methane. The FAO describes that of the gross energy intake is lost as methane, which is detrimen only milk productivity but also the environment.

Strategies to reduce methane emissions and improve producti

Feed-based solutions

Digestion influences methane emissions, implying that the natu
feed is of prime importance. As per a Korean study, modificatio
can reduce methane emissions from cattle by up to 60%. Thus,
Indian dairy industry should explore solutions based on easing t
digestion process, including fine grinding of feed to pellets and
switching to a more grain- or silage-based diet instead of a fully
based one. Further, small additions of supplements (such as red
biochar, and essential oils) can help overcome deficiencies and
emissions. For instance, research indicates that adding an amou
algae supplement equal to 0.25%–0.5% of total feed can reduce
emissions by 45%–68%.

Health monitoring

Constant monitoring of cattle health is also essential for mainta
methane emissions. For an animal's optimal health, the ambien
temperature should not cross 25 °C. Temperatures beyond this
heat stress to the animal. The Temperature–Humidity Index (T
which helps assess the heat stress in cattle based on the surrou
temperature and humidity, could have a heavy bearing on losse
threshold is crossed. As per a study at the National Dairy Resea
Center, the daily milk yield of indigenous cattle reduces by 0.8
unit increase in THI. This is one of the reasons for low milk pro
summer or the 'lean season'. Cattle stressed by heat, insufficien
space, and other social factors tend to have reduced digestion–
that nudges productivity and emissions. Taking steps to ensure
well-ventilated living spaces for cattle could go a long way in re

emissions and boosting productivity. Some Indian start-ups are working on solutions to monitor cattle heat and health.

The states of Uttar Pradesh, Rajasthan, and Madhya Pradesh, tl milk producers, are the largest methane emitters in the country are also states that house the greatest number of cattle. Thus, t country should look into cattle health and the associated emiss especially in these states.

Going forward

As emissions are a valuable indicator of the dairy industry's pro measures to reduce the same are crucial for India at this stage. Denmark is leading the way by bringing methane emissions fro dairy industry into focus and taxing emitters. While this is a rig mechanism and has garnered criticism, cognisance of these em an important lesson for India.

Programmes such as the Maharashtra Methane Mission that ta emission reduction by placing emphasis on enriching cattle fee serve as a role model for other states. Investing in cattle feed a improvement could target emissions, while boosting milk produ significantly, as intended by the *Rashtriya Gokul* Mission. Thes will not only boost India's milk productivity but also put the cou path to achieve her Sustainable Development Goals (SDGs) of a emissions reduction.

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