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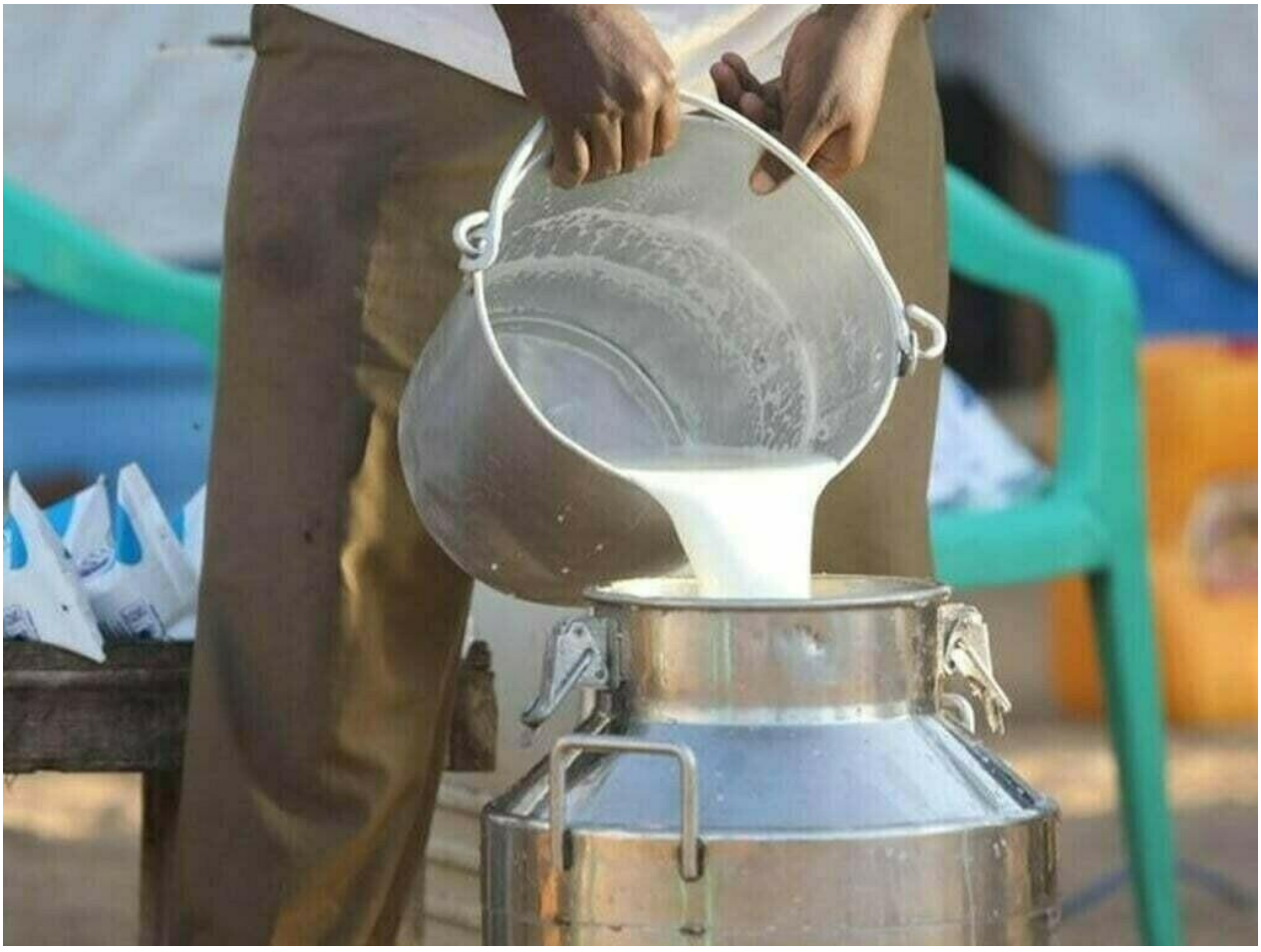
Dairy sector facing the challenge of unsustainable productivity

Abdus Sattar | September 16, 2024



Pakistan has a place in the list of world's top five milk-producing countries. Livestock is one of the funnelling sub-sectors of agriculture, involving more than 30- 35 million people earning more than 40% of their income.

Milk is the major and the single largest precious product of the sector. Milk production is predominantly led by the dairy animal population rather than milk yield.

Small dairy farmers, milkmen, processing companies, and consumers constitute the dairy sector. It faces numerous challenges; economically impacting all the stakeholders.

However, the real challenge is unsustainable productivity, which must be addressed through appropriate policies and incentives to revitalise the dairy sector.

In 2023, more than 750 million(m) individuals enmeshed in dairy farming globally.

The global milk production was 966 million tonnes(mt). The share of cow, and buffalo milk was 82%, and 14%, respectively while the combined share of goat, sheep and camel milk was only 4% in it.

The major milk-producing countries like India produced 214mt of milk, the USA 103mt, and Pakistan 70mt. Global dairy products exports were valued at US$66 billion (bn).

The EU exported cheese and butter worth US$ 22bn. New Zealand exported whole milk powder (WMP), butter and cheese worth US$26bn while the US exported cheese, skim milk powder (SMP) and whey powder worth US$ 10bn.

Fresh cow milk, priced at US$855 per tonne, was far below the value-added dairy item prices ranging between US$4,000 and US$7,000 per tonne.

By 2032, global milk production is expected to be 1,039mt. India, the USA and Pakistan would contribute 250mt, 115mt and 86mt of milk, respectively.

The global per capita consumption of processed and fresh dairy products will be 16kg and is expected to be the highest at 50kg per person in Pakistan. Around 30% and 7% of the global milk production will be processed and traded, respectively.

The EU, New Zealand, and the USA will endure the quintessential exporters of processed dairy products jointly accounting for 65% of cheese, 70% of WMP, 70% of butter, and 80% of SMP by 2032.

In Pakistan, the livestock sector has become a cornerstone of agriculture, contributing 61% of agricultural value-added and 15% of GDP in FY24. The sector's gross value added burgeoned from Rs 5.6 trillion in FY23 to Rs 5.8 trillion in FY24, reflecting a growth rate of 4%.

More than 8m rural households earn 35-40% of their income from the livestock sector. Almost 80% of milk is produced on small-scale farms in rural areas, while 20% in peri-urban and urban areas.

Approximately, 95% of milk is consumed raw, while 5% undergoes processing. Annually, 15-20% of total milk production amounting to over Rs.1000bn is wasted due to a lack of storage, transportation, and proper cooling facilities while milk wastage in India and Turkiye stands at 3% and 1%, respectively.

Each household spends 28% of its income on milk consumption in Pakistan. The milkman purchases milk from small dairy farmers at an average price of Rs.120-150/kg and sells it to consumers at an average price of Rs.160-220/kg depending on its quality (adulteration). After

imposition of 18% GST on packaged milk, its consumer price varies between Rs.360 and Rs.370 per litre in Pakistan, compared to Rs.342 in France, Rs.358 in the Netherlands, and Rs. 300 in Australia.

In Pakistan, milk demand surges by 10-15% annually, while supply increases by only 3-4%; hence a demand-supply gap of around 4mn tonnes in 2020-21. Dairy imports have been ineffectively bridging the gap for decades.

But it rose from US$2m in 1961, US$140m in 2019, and $63m (equivalent to Rs.17bn) in 2023. Most dairy imports contained SMP (86%) and WMP (11%). Dairy exports totalled US$74m in 2013, dropped to US$35m in 2017, dwindled further to US$14m in 2019, and then upturned to US$39m in 2023.

The share of fresh cow's milk was 95% while WMP and SMP constituted 5% of the total dairy exports. India's dairy exports, mainly SMP, were of US$468m in 2023.

Over the last six decades, Pakistan's milk production rose from 6mt in 1961 to 70mt in 2023, an average growth rate exceeding 3%.
Buffalo and cow milk production surged from 4mt to 46mt, and 2mt to 26mt, respectively.

The average growth rates for cow and buffalo milk production were 5% and 4%, respectively. Buffalo milk accounted for 60-67% of total milk production, cow milk for 31-37%, and milk from goats, sheep, and camels for 2-3%.

The dairy animal population is the main driver of milk production. The dairy buffaloes' and cows' populations surged from 3m to 16m, and 2m

to 16m with annual average growth rates of 4% and 3%, respectively, in the previous six decades.

In 2022, India possessed the world's largest low milk yield dairy animal population of 52m dairy cows and 44mn dairy buffaloes, while the USA has more than 9m exotic breeds of dairy cows. In 2023, the dairy cow population in Türkiye stood at 16m with exotic breeds (44%), cross-breeds (42%), and domestic cow breeds (14%).

In Pakistan, exotic breeds of cows are less than (1%), while indigenous cow breeds (54%) and indigenous buffalo breeds (45%) of the dairy animals. So 99% of dairy animals have belonged to domestic breeds with genetically low milk yields for the last six decades.
Milk yield is the engine of milk productivity. In Pakistan, buffalo milk yield soared from 1.6 to 2.3 tonnes, whereas cow milk yield rose from 0.9 to 1.5 tonnes from 1961 to 2022.

Cow and buffalo average milk yield growth rates remained at 1.1% and 0.8%, respectively. In 2022, cow and buffalo milk yields in India were 1.7 and 2 tonnes, respectively. However, countries like Israel, Estonia, Denmark, and the USA boast exotic dairy cow breeds milk yields of 10 to 13 tonnes. In 1910, the US Holstein Friesian cow and Sahiwal cow yielded over 1,000 litres of milk per lactation.

But in 2010, the Holstein Friesian cow's yield surged to over 10,000 litres, while the Sahiwal cow's yield remained at 2,000 litres per lactation. In the USA, 56% of milk production growth is attributed predominantly to R&D (genetic advancements), while the remaining 44% is attributed to modern dairy farm practices, nutritious feed, and treatment.

Türkiye rapidly burgeoned cow milk yield from 1.7 to 3.2 tonnes in the last two decades through importing exotic cow breeds.

In Pakistan, milk production has mushroomed primarily due to growth in the dairy animal population rather than an increase in milk yield over the past six decades. Despite having 3 to 300 times more dairy animals, milk yield is 7 to 9 times lower than that of developed countries.

The primary reason for low milk yield is the lack of research and development (R&D). It has been neglected since Independence, which unremittingly deterred milk yield. Developed nations spend approximately 4% of GDP on R&D, whereas India spends 0.62 to 0.86% of GDP.

Overall R&D expenditures in Pakistan hovered around 0.11 to 0.63% of GDP, with an iota share for the dairy sector, encumbering milk production potential of 80-110mt and export potential of US$30bn due to low milk yield.

Considering the significance of milk yield, Pakistan should prioritise and gradually increase its overall R&D expenditure to 2% of GDP annually, specifically allocating a dedicated budget for dairy sector R&D for a decade.

The focus should be on advancing genetics, adopting modern dairy farming practices, improving nutritional feed quality, and enhancing veterinary treatment.

A dire need is required for robust coordination among universities, research organisations, processing companies, small dairy farmers, and livestock departments. Electronic, print and social media could accelerate awareness regarding modern dairy techniques among small dairy farmers.

The private sector, especially progressive dairy farmers, should actively participate by importing high-yield cows, super bulls, and semen dozes from the USA, the Netherlands, New Zealand, and Australia. Artificial insemination and cross-breeding with high-yielding breeds can significantly elevate milk yields.

Incentives should be provided to small dairy farmers to shift from buffaloes to cows, supported by interest-free loans to acquire high-yield breeds. Small dairy farmers should also focus more on organic cows' value-added dairy products like desi ghee, yoghurt, and butter.
Milk processing companies should pivot around cow value-added dairy products, such as casein, butter, cheese, SMP, WMP, and whey milk powder.

Establishing additional milk collection centres and cold chain infrastructure prevents milk wastage of Rs.1000bn. Increasing import duties on dry milk can also encourage domestic dairy processing, potentially saving Rs.17bn in foreign exchange spent on dairy imports.

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