



Sustainable Livestock production in the context of developing countries

by
Abdul Shakoor Chaudhry
PhD, Animal Nutrition (Cambridge)
School of Natural & Environmental Sciences
abdul.chaudhry@newcastle.ac.uk



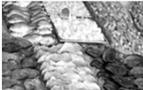


Global Meat Production (FAO, 2019)

- Massive increase (all species)
- Developing regions produce >40% of global meat
- But Per capita = <50kg (developing) vs >110kg (developed)?

A Few Facts?

- Human population is rising
- More in developing world
- ❖ More food is needed, e.g. – *Terrestrial & Aquatic*
- Livestock supply essential foods (*Macro & Micro*)
- Sustainable intake can fill the protein & energy gap
- Can it help Animal Health & Welfare?

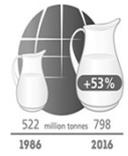



Abdul Chaudhry

Global Milk Production (FAO, 2017)

MILK PRODUCTION IN THE LAST THREE DECADES

WORLDWIDE



522 million tonnes 1986
798 million tonnes 2016
+53%

ASIA



93 million tonnes 1986
317 million tonnes 2016
+241%

TOP 10 MILK PRODUCERS (2014)

These countries produce about 62% of world production



Country	Percentage
Russian Federation	15%
USA	11%
Brazil	4%
France	3%
Germany	3%
Turkey	2%
Pakistan	2%
India	2%
New Zealand	2%
China	1%

- Big increase = 241% Asia vs 53% Global
- Pak 4th largest amongst top 10 countries
- Per capita consumption = <50 L vs >200 L *developed*?



Abdul Chaudhry

UK milk production vs farmgate price

(Farmers Weekly & AHDB, Feb 2020)

Production (Left Graph):

Year	Production (Million tonnes)
2012	11.8
2013	12.0
2014	12.2
2015	12.4
2016	12.6
2017	12.8
2018	13.0
2019	13.2

Price (Right Graph):

Year	Price (pence per litre)
2012	35
2013	30
2014	28
2015	26
2016	25
2017	26
2018	27
2019	28

- Farm size has increased from 118 to >205 cows /farm
- Less change in farmgate price of milk
- Yield increased from 6,353 to 8,352 L /cow /annum *vs*
- Global Average = < 2,500 L /animal /annum?

Abdul Chaudhry

Sustainability of Intensive Farming is Questioned by:

- Consumers
- Conservationists
- Animal Welfare Groups
- Environmentalists
- Policy Makers
- Livestock Farmers?
- Relevant to developing?

Unsustainability of meat overconsumption

Social: 20% higher risk of liver cancer for high-meat diets; 12,000 deaths per year from high-meat diets; 10,000 deaths per year from high-meat diets; 10,000 deaths per year from high-meat diets.

Environmental: Consumption of the farmed animals is the largest source of greenhouse gas emissions from the food system; 14% of global greenhouse gas emissions from the food system; 14% of global greenhouse gas emissions from the food system.

Economic: By 2050, consumption of red meat processed meat would increase from 12 billion kg to 22 billion kg; 2 billion kg of processed meat would be produced; 2 billion kg of processed meat would be produced.

Abdul Chaudhry

Benefits of Livestock Production

- Intensive Farming has improved Livestock Production (60 years?)
 - Efficient Breeds, Forages & Feeds
 - Growth Promoters & Feed Additives
 - Financial Incentives & Subsidies
- 1 B People are Undernourished (FAO 2019)?

Abdul Chaudhry

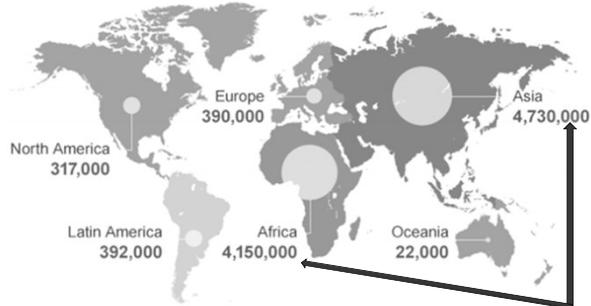
Food: greenhouse gas emissions across the supply chain

Our World in Data

Greenhouse gas emissions per kilogram of food product (kg CO₂e/kg product)

Abdul Chaudhry

AMR infections vs Projected deaths per year by 2050

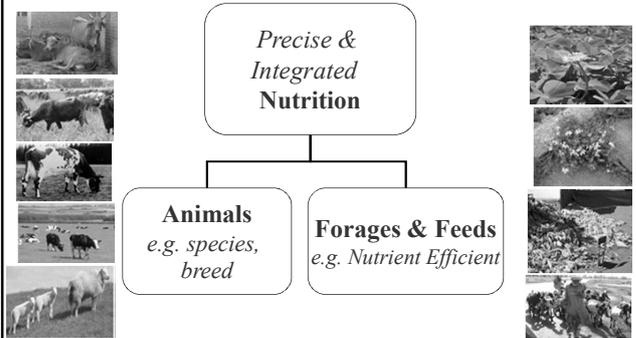


Source: Review on Antimicrobial Resistance 2014

❖ **Antibiotics are blamed for Resistance (AMR)**

Abdul Chaudhry

Sustainable Livestock Production



Newcastle University
UK, Malaysia, Singapore

Abdul Chaudhry

What is Sustainable Livestock Production?

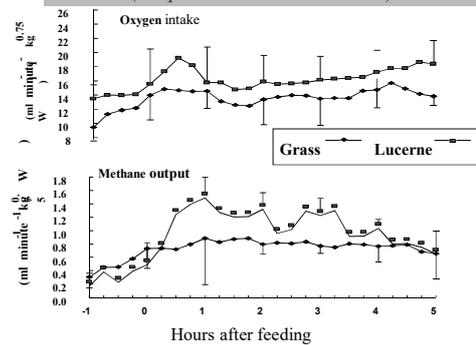
“High quality Animal Products for All for Ever while Caring for Planet, People & Animals”



Newcastle University
UK, Malaysia, Singapore

Abdul Chaudhry

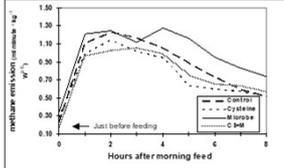
Efficient Forages modify Methane (Tropical Grass vs Lucerne)



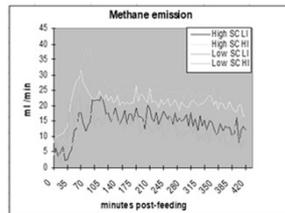
(Takahashi, Chaudhry et al. 1999)

Newcastle University
UK, Malaysia, Singapore

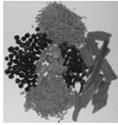
Dietary manipulation can mitigate CH₄ ? (Chaudhry & others 2010...)



Cysteine reduced CH₄ by 13%
but microbes increased CH₄



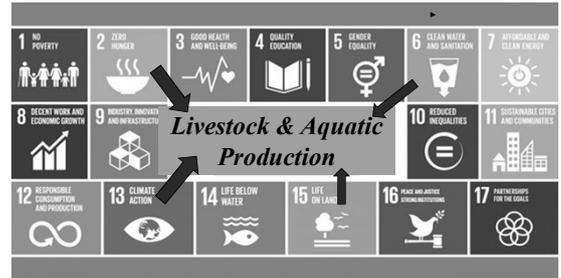
•High vs Low Soluble CHO or high vs low intake modify CH₄



Abdul Chaudhry



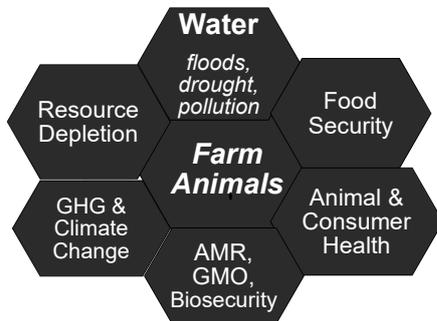
Concerted efforts can satisfy Multiple SDG!



Abdul Chaudhry



Challenges for Sustainable Livestock Production



Abdul Chaudhry



Crystallyx

LANXESS



Thanks to the funders, research students & staff



DONAGHY'S ProDairy



YORKSHIRE AGRICULTURAL SOCIETY



Department for Business, Energy & Industrial Strategy



UK | Malaysia | Singapore