

# Innovations in AMR Research: Alternatives to Antimicrobials (ATA) and Collaboration Opportunities in Bangladesh.

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## Problem statement

- Excessive antimicrobial use in animal health contributes to Antimicrobial Resistance (AMR)
- Antibiotics are often used for growth promotion and disease prevention
- Misuse increases antibiotic residues in food and threatens public health
- AMR also increases treatment cost in livestock production
- Limited awareness and weak antimicrobial stewardship among farmers and animal health workers accelerate misuse of antibiotics



Fig. 6. Farmers awareness program through Farmers Field Day(FFD) and training sessions (Source: DLS)

**Table 1. List of training and awareness campaigns on AMR conducted by DLS during last 4 years (2022-25)**

Category	Participants	Supported by
Participants (DLS, DGHS, DoF, Forest Department, Academia, etc) join in WAAW advocacy workshop/training during celebration of WAAR week throughout the country	5007	WOAH-DLS
AMR Training/workshop in total 40 batches (BARA: AMR and AMU CPD training for veterinarian and physicians)	800	FAO-ECTAD
Training/workshops for DLS paraprofessionals	3260	Livestock and Dairy Development project (LDDP)-DLS
<b>Farmers awareness:</b>		
<b>Beef fattening</b>	110,000	DLS
<b>Common Interest Group (CIG)</b>	207,000	LDDP-DLS
<b>Dairy, Poultry, Sheep, Goat, Beef Fattening</b>		

## The solution/Innovation

- Formulation of a National Strategic Plan for AMR Containment (2024–2028) implemented under One Health approach.
- AMR surveillance in human, animal and aquatic sectors through sentinel sites.
- AMU studies conducted in poultry and dairy sectors (mg/kg biomass).
- Formation of Bangladesh AMR Response Alliance (BARA) for professional collaboration.
- Promotion of Alternatives to Antimicrobials (ATA):
  - ✓ Probiotics
  - ✓ Prebiotics
  - ✓ Organic acids
  - ✓ Herbal products



Fig 1. National Surveillance: Human, animal including aquatic Health (Ref: FFCG, Bangladesh)



Fig 3. BARA Bangladesh workshop for sensitization of Veterinarians and physicians (Source: FAO, ECTAD, Bangladesh)

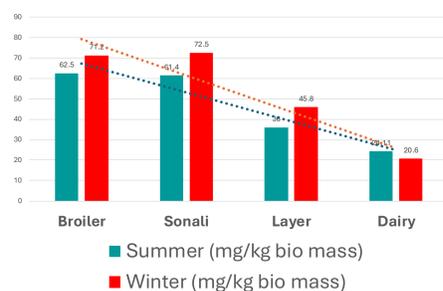


Fig 2. Seasonal variation of Antimicrobial Uses (mg/kg) (Ref: FFCG, Bangladesh)

## Scalability and regional relevance

- Farmers are increasingly aware of prudent antimicrobial use; some practice zero-antibiotic poultry production
- Bangladesh regularly submits Antimicrobial Use (AMU) data to the WOA repository:
  - ✓ AMU (2023): 38.34 mg/kg animal biomass
  - ✓ Global rank: 43rd (Rank 1 = highest usage)
- Good Livestock Production Practices (GLPP) is yet to be scaled nationwide
- DLS develops Standard Treatment Guidelines for poultry and large animals including AMR stewardship and disseminates them at the field level
- Capacity-building and training programs for farmers, veterinarians and paraprofessionals support the adoption of GLPP and AMR practices.
- Supports One Health objectives by linking animal, human, and aquatic health interventions

## Regulatory Framework and Promotion of (ATA) in Bangladesh

- Fish and Animal Feed Act (2010) and Feed Rules (2013) prohibit antibiotics, hormones and harmful chemicals in animal feed
- DGDA banned 34 critically important antibiotics (2019) and Colistin in animal production
- Import Policy Order (2021–2024) strengthens regulatory control on antimicrobial use
- Promotion of Alternatives to Antimicrobials (ATA) such as probiotics, prebiotics, organic acids and herbal products
- AMR and AMU awareness programmes for veterinarians and paraprofessionals
- LRI (DLS) produces 17 vaccines to prevent diseases and reduce antibiotic use in small and medium farms
- Imported poultry and large-animal vaccines support disease prevention in commercial farms

## Key results/impacts

- Broiler meat residues: Oxytetracycline 4%, Enrofloxacin 4%, Amoxicillin 2%
- Awareness: Farmers and stakeholders more aware of prudent antimicrobial use; some adopt zero-antibiotic poultry production
- Antibiotic reduction: Vaccination, GLPP, and ATA practices reduce antibiotic use
- AMR stewardship: Standard Treatment Guidelines and training strengthen compliance
- Regional model: Supports neighboring countries in AMR containment

## Partners and donor involved

Fleming Fund Country Grant (FFCG), Bangladesh; FAO-ECTAD, Bangladesh; Danish Veterinary and Food Administration (DVFA) ; WOA

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