



# Poultry technologies Toolkit

This toolkit is a collection of technologies designed to optimize poultry production across Africa. These technologies have been selected to address the challenges encountered in poultry production and transformation, ensuring a more resilient and profitable poultry sector. By integrating these technologies into your projects or business plans, you can maximize yields whil...

10 TECHNOLOGIES | CREATED ON JUN 10, 2024 BY TAAT PROFILING TEAM | LAST UPDATED MAY 28, 2025



### TECHNOLOGIES IN THIS TOOLKIT

- Processing chicken meat for cold storage
- Semi-Automatic Incubator for artificial hatching
- Biosecurity for Disease
   Prevention
- Genetically Improved Poultry
- Breeds for Optimized Meat and...Special Chicken Breed: Dual-
- Purpose Chicken for Small-Scale... • Low-Cost Cage and Free-Range
- Containment
- Poultry Vaccination against Newcastle Diseases
- Value Addition to Poultry Manure
- Mechanized Defeathering and Egg Sorting
- Local Production of Quality
   Affordable Poultry Feed



& <u>https://taat.africa/jer</u>



# Semi-Automatic Incubator for artificial hatching

Hatching Success, One Chick at a Time

This technology reproduces the natural incubation process on a larger scale. They are designed to accommodate 50 to 150 eggs at a time. They can be heated using kerosene or a battery-powered light bulb, offering an alternative to mains electricity.



# This technology is <u>TAAT1 validated</u>.



Climate impact

## Gender assessment

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Problem

### Solution

- Limitation of natural incubation in producing chicks, with a capacity of only 10-12 chicks per hatch.
- Difficulty in responding quickly to the market demand for chicks.
- Risk of the spread of parasites and diseases in the natural incubation process.
- This technology has the ability to hatch day-old chicks in just 21 days, increasing the capacity to produce a large number of chicks in a short time in response to market demand.
- High success rate of 85-90% in artificial incubation, increasing production efficiency.

17

• Reduced risk of the spread of parasites and diseases in the artificial incubation process.

### Key points to design your project

The Artificial Hatching in Semi-Automatic Incubators technology transforms poultry farming by accelerating chick production and ensuring a reliable supply. To integrate it in your project:

- Conduct awareness campaigns, assist in selecting incubators, and develop marketing strategies.
- Evaluate quantity, consider delivery costs, and collaborate with institutes for implementation.
- Training and communication support are vital, and association with other poultry farming practices enhances sustainability.





LIVESTOCK RESEARCH

#### Best used with

- <u>Genetically Improved</u>
   <u>Poultry Breeds for</u>
   <u>Optimized Meat and Egg</u>
   <u>Production ></u>
- Dual-Purpose Chicken for Small-Scale Producers >



Where it can be used

This technology can be used in the colored agroecological zones.



Semi-Automatic Incubator for artificial hatching https://taat.africa/cck Last updated on 11 December 2024, printed on 15 May 2025 Enquiries <u>e-catalogs@taat.africa</u>

# **Biosecurity for Disease Prevention**

### Safeguarding Poultry Health

The "Biosecurity for Disease Prevention" technology involves practices and strategies in poultry farming to prevent disease spread. It focuses on three main elements: isolation, traffic control, and sanitation, along with training for farmers and workers. This technology emphasizes early disease detection and diligent surveillance to minimize impact. Biosecurity is crucial throughout the poultry value chain, from breeding to feed processing, to protect against various pathogens, including those harmful to humans.



This technology is TAAT1 validated	Scaling readiness: idea maturity	Technology from
	8/9; level of use 7/9	ProPAS
Gender assessment	Climate impact	Commodities
Problem	Solution	Poultry
<ul> <li>High risk of disease introduction and transmission due to large, concentrated bird populations.</li> <li>Diseases can cause mass culling and significant economic losses.</li> <li>Effective strategies are needed to prevent disease transmission.</li> <li>Certain diseases, like Salmonella and Avian Influenza, also threaten human health</li> </ul>	<ul> <li>Implementing preventative measures such as isolation, traffic control, and sanitation.</li> <li>Emphasizing early disease detection through diligent surveillance.</li> <li>Offering training to poultry farmers and workers on the importance of biosecurity for health and profitability.</li> <li>Applying biosecurity practices across all stages of</li> </ul>	Sustainable Development Goa 3 Goot Halth 
	the poultry value chain, from breeding to	Categories
	processing. • Protecting against a wide range of poultry	Production, Practices, Pest control (excluding weeds)

Protecting against a wide range of poultry pathogens, safeguarding both poultry and human health.

### Key points to design your project

Implementing biosecurity measures in poultry farming can enhance gender equality (SDG 5) by improving working conditions, particularly benefiting women. These measures also boost climate resilience by preventing disease outbreaks and reducing waste. Additionally, biosecurity supports various Sustainable Development Goals (SDGs), including good health (SDG 3), decent work (SDG 8), and responsible consumption (SDG 12).

To integrate biosecurity practices into your project, consider the following:

- Design secure premises with veterinarians and engineers.
- Engage with technology providers on the importance and profitability of biosecurity.
- Develop communication materials like flyers, videos, and radio broadcasts.
- Provide a team of trainers for installation, training, and support, including costs for these services.

Accompanying solutions include universal vaccination against Newcastle disease and adding value to poultry manure.



Veterinary costs reduced

0.036-0.076 USD Materials per birds



Where it can be used

This technology can be used in the colored agro-ecological zones





Enquiries e-catalogs@taat.africa

t Goals

#### Best used with

- Poultry Vaccination against Newcastle Diseases >
- <u>Value Addition to Poultry</u> Manure >



# **Genetically Improved Poultry** Breeds for Optimized Meat and **Egg Production**

Enhance Productivity with Resilient, High-Performance Chickens

This technology provides genetically improved chicken breeds for meat (broilers) and egg (layers) production. Developed through selective breeding, they offer higher yields and are distributed through hatcheries, requiring proper management for optimal results.



#### This technology is **TAAT1 validated**. Ś 8.8 Gender assessment 🖕 5 È Climate impact **5** Problem Solution

- · Low-quality chicken breeds with poor genetics and susceptibility to diseases.
- Limited meat and egg production in naturally selected local chickens.
- Insufficient management and resources for genetically improved chicken breeds in extensive production systems.
- The technology enhances genetic traits related to meat and egg production.
- This ensures that only chickens with the desired traits for meat and egg production are selected for breeding.
- By controlling the incubation process, the program ensures that chicks have a higher chance of survival and development.

### Key points to design your project

The Flock Improvement of Meat and Layer Breeds technology enhances poultry production by breeding chickens with desired traits for meat and egg production, reducing reliance on inferior breeds. To integrate this technology:

- Acquire a license for breeding and selling chicks.
- Assess project needs for poultry breeding.
- · Provide comprehensive training on breeding practices.
- · Select suitable chicken breeds based on goals and conditions.
- Ensure access to quality breeding stock and inputs.
- Implement improved breeding practices.

Cost: \$\$\$ Over 1 million USD

Establishment of a poultry breeding company

 $\bigcirc$ IP Open source / open access





LIVESTOCK RESEARCH

#### Categories

Production, Practices, Yield improvement

Best used with

• <u>Semi-Automatic Incubator</u> for artificial hatching >





#### Where it can be used

This technology can be used in the colored agro-ecological zones





Genetically Improved Poultry Breeds for Optimized Meat and Egg Production https://taat.africa/mbr

Last updated on 18 September 2024, printed on 15 May 2025

Breeders Enquiries <u>e-catalogs@taat.africa</u>

Target groups



### Key points to design your project

- Enhances poultry productivity for rural poverty alleviation and food security
- Empowers women, creates jobs, and supports economic growth in rural areas
- Improves poultry industry through innovative breeding and distribution
- Fosters sustainable agriculture and conserves biodiversity
- Requires building infrastructure, acquiring equipment, and estimating costs for integration
- · Collaboration with agricultural institutes and consideration of complementary technologies recommended

# 930 USD

Purchase and rear 1000 birds for five weeks

1.5-2.0 kg

Weight of chickens in 3 months

### 120-180 eggs

Production by chickens per year



 $\bigcirc$  IP

Open source / open access



Target groups



Special Chicken Breed https://taat.africa/hjg Last updated on 18 September 2024, printed on 15 May 2025 Enquiries <u>e-catalogs@taat.africa</u>

Ad opted

Tested Testing ongoin



Low-Cost Cage and Free-Range Containment https://taat.africa/znj Last updated on 22 May 2024, printed on 15 May 2025



# **Poultry Vaccination against** Newcastle Diseases

Low-cost vaccination for poultry

The "Universal Vaccination against Newcastle Diseases" is a method for widespread vaccination in poultry. It includes thermostable vaccines, efficient



ND I-2 vaccine is available in small vials

# LIVESTOCK RESEARCH International Livestock

Research Institute (ILRI) Tunde Amole





# Value Addition to Poultry Manure

Transforming waste into wealth

Value Addition to Poultry Manure transforms chicken manure into nutrient-rich organic fertilizer. Composting detoxifies the manure, enhancing soil fertility and reducing reliance on chemical fertilizers.

✓ This technology is <u>TAAT1 validated</u> .	<b>117.7</b> Scaling readiness: idea maturity 7/9; level of use 7/9	P
Gender assessment	Climate impact	С
Problem	Solution	P
<ul> <li>Pathogens and Unpleasant Odors: Fresh chicken manure can contain harmful pathogens and emit an off-putting odor.</li> <li>Underutilization: Chicken manure is often unused due to these issues.</li> <li>Environmental Impact: Large-scale poultry farms generate significant manure, leading to unpleasant odors, groundwater pollution, and methane emissions.</li> </ul>	<ul> <li>Pathogen-Free Organic Fertilizer Production: Converts chicken manure into safe, nutrient-rich organic fertilizer through composting, ensuring plant health and human safety.</li> <li>Sustainable Environmental Impact Mitigation: Transforms raw chicken manure into valuable organic fertilizer, reducing odors, preventing groundwater contamination, and mitigating methane emissions.</li> </ul>	S C P A
	• <b>Cost-Efficient Waste Management</b> : Repurposes chicken manure into valuable organic fertilizer, reducing waste management costs and enhancing overall farm profitability.	B

### Key points to design your project

Poultry farming boosts women's financial independence and leadership roles. This technology transforms waste into valuable organic fertilizer, reducing odors, groundwater contamination, and methane emissions. It also reduces reliance on chemical fertilizers, supporting climate goals. This project contributes to achieving SDGs 1 (poverty reduction), 2 (food security), 5 (gender equality), and 13 (climate action).

#### Key points for project step up:

- Assess & Select: Identify farmers interested in value addition with suitable farm size and resources.
- Train & Build Capacity: Train extension agents and farmers on composting and value-added products.
- Implement & Support: Organize workshops, establish demonstration plots, and provide technical support and financing access.
- · Market Access & Sustainability: Connect farmers with buyers and evaluate project impact.

# Cost: \$\$> 5,000-10,000 USD

drying and pelleting equipment

### 30,000 USD

### **3,000** USD

organic fertiliser production plant of 15 ton per hour 15 m3 anaerobic digester able to process 300 kg of poultry manure per day Open source / open access





#### LIVESTOCK RESEARCH IN STITUTE International Livestock Research Institute (ILRI)

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Technology from		
ProPAS		
Commodities		
Poultry		
Sustainable Development Goals		
2 ISON REAL TO COCUMPTON AN APPROXIMATION		
Categories		
Production, Pre-production, Practices, Animal waste management		
Best used with		
Biosecurity for Disease     Prevention >     Low-Cost Cage and Free		
Range Containment >		
Tested/adopted in		
Tested & adopted		
Adopted		
Testing ongoing		

Where it can be used

This technology can be used in the colored agro-ecological zones.











# Poultry technologies Toolkit

#### ABOUT US

### TAAT

TAAT, Technologies for African Agricultural Transformation, is an African Development Bank initiative to boost agricultural productivity by rapidly rolling out proven technologies to more than 40 million smallholder farmers.

TAAT aims to double crop, livestock, and fish productivity by 2025 by engaging both public and private sectors to expand access to productivity-increasing technologies across the continent.TAAT advises African government who receive funding from international financial institutions such as the African Development Bank to help them integrate the best agricultural technologies in their development projects. TAAT also offers technical assistance for the integration of these technologies, when needed.

### TAAT Technologies

TAAT definition of agricultural technologies is very broad: they include improved varieties, inputs, equipment, agricultural infrastructure, practices and agricultural policies. In short, any solution to an agricultural constraint. TAAT technologies have been developed by a wide variety of organizations: the CGIAR, other international research institutions, national research organizations, or the private sector.

### TAAT Clearinghouse

Within TAAT, the Clearinghouse has the remit to select, profile and validate agricultural technologies, and showcase them in online

catalogs to support the advisory role that the Clearinghouse offers to governments and the private sector. The Clearinghouse strives to be an 'honest broker' of technologies through its selection, profiling, validation and advice.

### TAAT e-catalogs

The e-catalogs are designed to be used by decision-makers within governments, private sector companies or development organizations. They facilitate the search for appropriate solutions that are adapted to local conditions and requirements, and provide all necessary information, presented in jargon-free and easy to analyze technology profiles. Once a decision-maker has selected a technology of interest, the e-catalogs facilitate their direct contact with those who can help them implement the technology, whether they are a research group or a private company.

### TAAT Technology Toolkits

Technology toolkits are hand-picked selections of technologies from the TAAT e-catalogs. We offer some curated toolkits for specific cases, and registered users can create their own toolkits, showcasing their selection of technologies. Toolkits can be used online and shared as links, as mini e-catalogs, they can also be downloaded, saved, shared or printed as collections of technology pitches in PDF format (pitches are one-page summaries of technology profiles, available for all technologies on the e-catalogs).



#### CONTACT

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