




Livestock technologies Toolkit

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

9 TECHNOLOGIES | CREATED ON JUN 10, 2024 BY TAAT PROFILING TEAM | LAST UPDATED AUG 21, 2025




TECHNOLOGIES IN THIS TOOLKIT

- **Processing and Application of Composted Manures**
- **Short-Term Fattening and Supplemental Feeding**
- **Cut-and-Carry Fodder Systems**
- **Small Ruminant Containment in Protective Sheds**
- **Local Livestock Improvement through Community Breeding**...
- **Thermostable vaccine against PPR disease**
- **Best practices in pasture management**: Pasture Improvement
- **Hide Curing and Secondary Leatherworks**
- **Ethical Meat Processing**: Humane Slaughtering and Meat Inspection

https://taat.africa/zmg

Processing and Application of Composted Manures

Turning Waste into Wealth for Greener Fields

Composted goat and sheep manure is readily compressed into organic fertilizer pellets. These fertilizer pellets are convenient for application, transportation, and storage. After composting, production involves crushing, screening, granulating, drying and further screening for pellet uniformity.

International Livestock Research Institute (ILRI)
Adeniyi Adediran

This technology is TAAT1 validated.

8·8 Scaling readiness: idea maturity 8/9; level of use 8/9

Gender assessment 4

Climate impact 6 1

Problem

- Goat and sheep manure may contain human pathogens and weed seeds, posing hazards to crops and the environment.
- Nutrients in goat and sheep urine are often wasted, and improper manure handling can lead to environmental pollution.

Solution

- Composting rapidly deactivates human pathogens and weed seeds in manure, making it safe for use as compost on vegetable crops.
- Commercial technologies permit to produce organic fertilizers from goat and sheep manure, increasing its economic value and reducing waste.

Key points to design your project

The Processing and Application of Composted Manures technology offers a solution for reducing poultry feed costs. To integrate this technology into your project, follow these steps:

- Invest in compost turning and pellet making machinery.
- Analyze feed ingredient composition and identify any constraints.
- Evaluate ingredient cost and availability.
- Engage a team of trainers for installation support and develop communication materials to highlight benefits.
- Collaborate with breeders and local stakeholders.

Cost: $$$ **5000—10000 USD**
Manure drying and composting equipment

200—1000 USD
Composted manure per ton

IP
Open source / open access

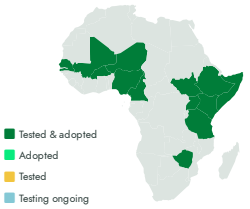
Technology from
ProPAS

Commodities
Small livestock

Sustainable Development Goals

Categories
Pre-production, Practices, Input processing

Tested/adopted in



Where it can be used

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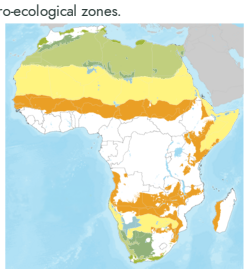


Target groups
Farmers

Short-Term Fattening and Supplemental Feeding

Fast Feed, Fast Fatten, Fast Fortune: The Future of Livestock Farming!

Goat fattening with excess feed and limited movement

The technology is a strategic feeding method used in feedlots to quickly fatten livestock, particularly goats and sheep, for slaughter. It aims for optimal fat deposits and three fattening cycles per year, timed with festive seasons for peak demand and prices. This ensures quick turnover, aligns with market dynamics, and makes the practice profitable and responsive to market needs.

International Livestock Research Institute (ILRI)
Adeniyi Adediran

This technology is TAAT1 validated.

7·7 Scaling readiness: idea maturity 7/9; level of use 7/9

Gender assessment 4

Climate impact 7

Problem

- Limited space for extensive livestock farming.
- High risks associated with livestock ventures.
- Long timeframes for returns in traditional farming.
- Challenges in implementing movement restrictions for intensive feeding.

Solution

- Feedlot Farming: Maximizes space usage.
- Profitable Turnover: Minimizes risks.
- Quick Returns: Ensures fast results.
- Effective Restrictions: Manages animal movement.

Key points to design your project

This technology aids in achieving SDG 2 (Zero Hunger) by boosting meat production and can support SDG 5 (Gender Equality).

For successful integration into a project, key steps include:

- Engaging stakeholders to tailor the technology to regional needs.
- Training breeders on the technology and its benefits.
- Developing necessary infrastructure like feedlots and feed storage.
- Managing supply chain for steady animal and feed supply.
- Monitoring and evaluating the project's progress and impact.

These steps should align with regional context and government livestock farming policies.

80 USD
cost of a young animal

ROI: $$$ **50 %**
Net return in few months

70 USD
cost to finish a young animal in four months

IP
Open source / open access

Technology from

ProPAS

Commodities

Small livestock

Sustainable Development Goals

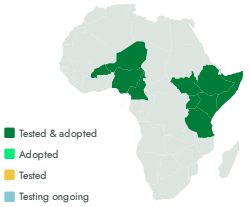
2 ZERO HUNGER

8 DECENT WORK AND ECONOMIC GROWTH

Categories

Production, Practices,
Animal feed management

Tested/adopted in



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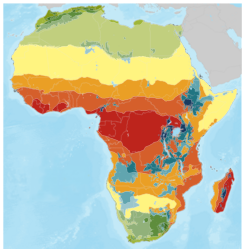


Target groups

Breeders

Cut-and-Carry Fodder Systems

Low-cost fodder system for livestock

"Cut-and-Carry Fodder Systems" technology delivers fresh feed directly to confined livestock, replacing traditional grazing. It involves daily harvesting and distributing feed, suitable for dairy cattle, goats, and sheep, particularly in areas with limited feed resources.

International Livestock Research Institute (ILRI)
Adeniyi Adediran

This technology is TAAT1 validated.

7·7 Scaling readiness: idea maturity 7/9; level of use 7/9

Gender assessment 4

Climate impact 6

Problem

- Feed wastage in free-grazing systems due to trampling, contamination, and inefficient utilization.
- Traditional grazing results in delayed livestock fattening and longer timeframes for returns on investment, particularly after weaning.
- Underutilization of valuable resources like crop residues and seasonal vegetation in traditional grazing methods.

Solution

- Efficiently utilizes crop residues and seasonal vegetation, preventing wastage.
- Facilitates the collection and use of manure for enhanced soil fertility and productivity.
- Allows for both zero-grazing and partial confinement, offering flexibility in grazing practices.

Key points to design your project

Steps to integrate the technology into your project:

- Ensure availability of sufficient vegetation.
- Prepare for moderate expenses.
- Be prepared for labor-intensive tasks.
- Ensure access to improved breeds.
- Acquire skills in animal diets, health care, and market intelligence.

Consider training and support during project installation, communication support, and collaboration with agricultural development institutes for implementation.

50—100 USD	**20 USD**	**IP**
Feed and water troughs for 20 to 50 animals	Suitable shed per m2	Open source / open access

Technology from

ProPAS

Commodities

Small livestock, Cattle

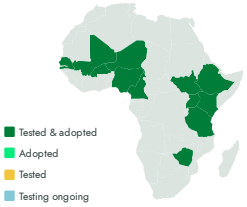
Sustainable Development Goals

13 CLIMATE ACTION · 15 LIFE ON LAND · 2 ZERO HUNGER · 5 GENDER EQUALITY

Categories

Production, Practices,
Animal feed management

Tested/adopted in



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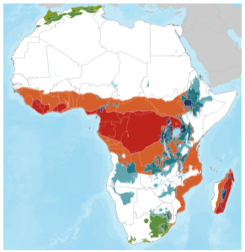


Target groups

Breeders

Small Ruminant Containment in Protective Sheds

Secure Shelters, Thriving Flocks

Upper-end protective containment of goats and sheep

Small Ruminant Containment in Protective Sheds is a cost-effective technology providing essential shelter for goats and sheep. Constructed from local materials, these sheds protect livestock from predators, weather, and diseases, while ensuring ventilation, drainage, and feeding facilities. They contribute to animal health, productivity, waste management, and biosecurity, offering an affordabl...

International Livestock Research Institute (ILRI)
Adeniyi Adediran

This technology is TAAT1 validated.

7·6 Scaling readiness: idea maturity 7/9; level of use 6/9

Gender assessment 4

Climate impact 7

Problem

- **Security**: Risk of predator attacks and theft.
- **Basic Needs**: Difficulty in finding food and shelter.
- **Health**: Risk of disease transmission.
- **Cost**: High expense of building shelters.

Solution

- **Safety & Health**: Protects livestock from predators and diseases.
- **Environment**: Shields from weather and manages waste.
- **Biosecurity**: Reduces disease transmission.
- **Affordability**: Cost-effective and adaptable for small-scale farmers.

Key points to design your project

Small Ruminant Containment in Protective Sheds is a technology that positively impacts gender equality, climate, and contributes to SDGs. It provides an affordable livestock management method, mitigates climate change effects, and contributes to SDGs 1, 2, 13, and 15.

For project managers aiming to promote this technology among breeders, the approach includes:

- **Awareness Campaigns**: Educate breeders about the technology's benefits.
- **Training Programs**: Train breeders on shed construction and maintenance.
- **Demonstration Sites**: Show the technology in action.
- **Compatible Technologies**: Promote integration with other livestock management practices.
- **Key Partners**: Collaborate with local artisans and agricultural organizations.

This approach ensures successful technology adoption, leading to improved livestock management and productivity.

Cost: $$$ **2,000 USD**

Bulding construction

12,000 USD

Benefit in a year

IP

Open source / open access

Technology from

ProPAS

Commodities

Small livestock

Sustainable Development Goals

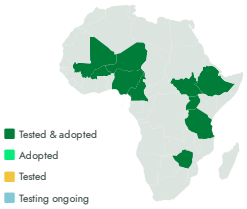
2 ZERO HUNGER

8 DECENT WORK AND ECONOMIC GROWTH

Categories

Production, Equipment, Production System

Tested/adopted in



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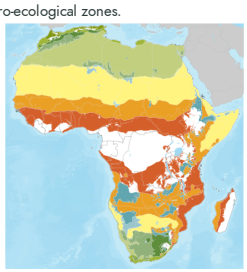


Target groups

Breeders

Local Livestock Improvement through Community Breeding Programs

Transforming Ruminant Farming Together

The Local Livestock Improvement through Community Breeding Programs enhances goat and sheep genetics by improving traits like growth, disease resistance, and reproduction. Led by local farmers with expert support, the program uses data to monitor progress and ensure best practices. Supported by governments and donors, it boosts livestock productivity and strengthens community resilience, contributing to food security and economic growth.

International Livestock Research Institute (ILRI)
Tunde Amole

This technology is TAAT1 validated.

7·9 Scaling readiness: idea maturity 7/9; level of use 9/9

Inclusion assessment 4

Climate impact 3

Problem

- Poor genetics and diseases limit small ruminant productivity.
- Mixed herd structure complicates breeding and tracking genetic progress.
- Lack of breeding records hinders genetic management.
- Crossbreeding with exotic breeds yields mixed results.
- Technical skills are needed to establish breeding programs and support breeders.

Solution

- Improved genetics through structured selection.
- Targeted breeding efforts for specific male breeders.
- Data recording aids informed mating decisions.
- Focus on community-based selection for better outcomes.
- Breeders receive technical support and training.

Key points to design your project

- The technology improves small-scale farmers' incomes and food security by enhancing small ruminants' productivity and resilience.
- It reduces disease prevalence and fosters economic growth in rural areas.
- The technology promotes climate resilience and supports sustainable land use and biodiversity conservation.
- Steps to integrate the technology:
  - Identify suitable locations for implementation.
  - Evaluate and prioritize breeding stock based on desired traits.
  - Establish clear breeding objectives tailored to community needs.
  - Implement recording systems for tracking breeding data.
  - Select elite animals for breeding and provide technical support to community members.
  - Collaborate with stakeholders to strengthen institutional relations and market linkages.

15 %
familly income increase

IP
Open source / open access

Technology from

ProPAS

Commodities

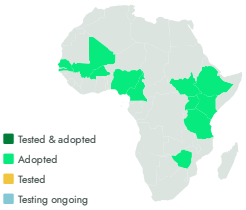
Small livestock

Sustainable Development Goals

Categories

Production, Practices, Seed system

Tested/adopted in



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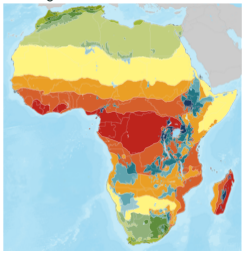


Target groups

Breeders

Thermostable vaccine against PPR disease

Reliable, Effective, and Accessible Disease Control for Small Ruminants.

The vaccine, available in two forms, effectively protects small ruminants against PPR. The ILRI thermotolerant PPR vaccine, produced through the Thermovac process, and Xerovac are both stable at ambient temperatures, even enduring spikes of 38°C for 9 days and 40°C for 7 days.

International Livestock Research Institute (ILRI)
Tunde Amole

This technology is TAAT1 validated.

8·7 Scaling readiness: idea maturity 8/9; level of use 7/9

Inclusion assessment 5

Climate impact 5

Problem

- High mortality rates among small ruminants due to PPR.
- Limited vaccine storage options hindering widespread use.
- Economic losses estimated at USD 2.1 billion yearly.
- Previous constraints in maintaining vaccine stability.
- Restricted coverage of vaccination campaigns.

Solution

- No need for cold storage, easing access and logistics.
- Effective for up to two weeks without refrigeration.
- Demonstrated efficacy in multiple countries against PPR.
- Reduces storage costs, making it more affordable.
- Vaccinates more animals in less time, enhancing disease control.

Key points to design your project

The technology reduces economic losses and poverty among small ruminant farmers by preventing PPR outbreaks and improving food security. It also enhances animal health, reduces disease spread, and promotes economic growth. To integrate this technology into your project:

1. Ensure availability and affordability of thermostable vaccines.
2. Educate producers on PPR vaccination benefits and encourage their investment.
3. Ensure compliance with vaccination instructions.
4. Train and certify animal health professionals.

Calculate required product quantity based on a cost of 0.3-0.5 USD per animal. Consider additional expenses like delivery, import clearance, and duties if sourced from specific countries. Budget for training and support during project implementation and consider collaborating with agricultural institutes.

Cost: $$$ **0.3—1.0 USD**

Vaccine dose cost per animal

ROI: $$$

IP

Open source / open access

Technology from

ProPAS

Commodities

Small livestock

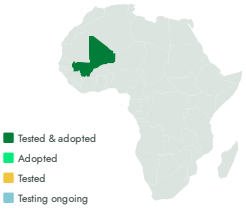
Sustainable Development Goals

+ 1 more

Categories

Production, Inputs, Pesticide

Tested/adopted in



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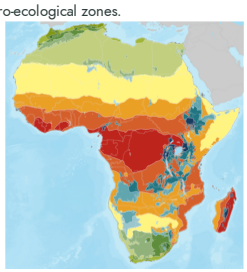
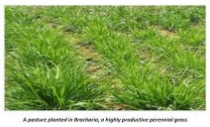


Target groups

Breeders

Best practices in pasture management: Pasture Improvement



Revitalize Your Pastures, Sustain Your Livestock

This technology aims to enhance productivity in managed pastures through intensive management practices like fertilization, seeding, and irrigation. It includes controlling weeds, partially disturbing the land, and introducing high-yield grasses and legumes, along with other methods such as planting grazing species in croplands and establishing shrub hedgerows.

International Livestock Research Institute (ILRI)
Tunde Amole

This technology is TAAT1 validated.

7·8 Scaling readiness: idea maturity 7/9; level of use 8/9

Gender assessment 4

Climate impact 7

Problem

- Limited Access to Affordable Feed
- Inefficient Pasture Establishment
- Climate and Region-specific Challenges
- Weed Invasion and Reduced Productivity
- High Costs of Pasture Establishment
- Limited Knowledge Sharing and Accessibility

Solution

- Provides cost-effective methods for establishing pastures.
- Reduces reliance on expensive purchased feed.
- Equips producers with valuable pasture management skills.
- Advises on suitable species and management practices.
- Tailors advice to the region's climate and conditions.
- Offers strategies for weed management and productivity.

Key points to design your project

- Steps to incorporate the technology into a project include identifying project needs, conducting training sessions, selecting suitable pasture species and practices, ensuring access to quality seeds and inputs, implementing management practices, and collaborating with stakeholders.
- Budget estimation involves allocating costs across land preparation, weed control, fertilizer, and seed, considering an average cost of USD 400 to 600 per hectare spread over several years.
- Adequate training and post-training support are essential, along with the development of communication materials to promote the technology.
- Collaboration with private seed companies, cooperatives, seed growers, and farmers is crucial for successful technology implementation.

Cost: $$$ **400—600 USD**

Pasture establishment with improved perennial grasses/ha

IP

Open source / open access

Technology from

ProPAS

Commodities

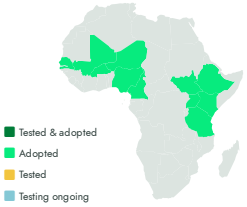
Small livestock

Sustainable Development Goals

Categories

Production, Practices,
Animal feed management

Tested/adopted in



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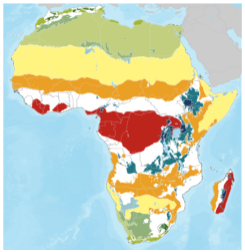


Target groups

Farmers

Hide Curing and Secondary Leatherworks

Turning hides into leather to enrich communities

The "Hide Curing and Secondary Leatherworks" technology underscores the importance of properly treating animal hides to maximize their value. Hides can be processed into various high-value products such as shoes, handbags, and clothing.

This technology is TAAT1 validated.

8·8 Scaling readiness: idea maturity 8/9; level of use 8/9

Gender assessment 3

Climate impact 5

Problem

- Without proper treatment, hides, which are highly valuable, may be discarded or used as food along with the carcass.
- Communities with access to hides may lack the means to process them, missing out on potential economic benefits.
- Without effective curing and tanning methods, hides may not be preserved optimally, resulting in lower-quality products.

Solution

- This technology promotes the treatment of hides through cleaning, drying, and specialized methods, ensuring they are not wasted and can be utilized in the production of valuable items such as bags and shoes.
- It aims to educate individuals on the necessary skills for working with hides, providing them with the appropriate tools and materials to effectively process hides.
- Additionally, it assists local communities in establishing small businesses for hide processing, enabling them to create products and generate profits.

Key points to design your project

Hide curing and secondary leatherworks technology maximizes the value of livestock production by creating valuable leather products. To integrate this technology effectively:

- Understand the process: Learn hide curing and leatherworks techniques to ensure hides are properly treated.
- Invest in skills and materials: Provide training and access to tools for artisans to work with hides effectively.
- Establish local businesses: Help communities set up small businesses focused on hide processing to generate profit.

1,000 USD
Investment cost

ROI: $$$ **100 %**

IP
Open source / open access

International Livestock Research Institute (ILRI)
Adeniyi Adediran

Technology from

ProPAS

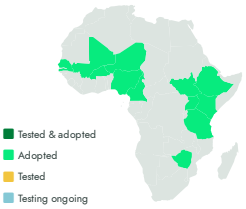
Commodities

Sustainable Development Goals

Categories

Transformation, Practices

Tested/adopted in



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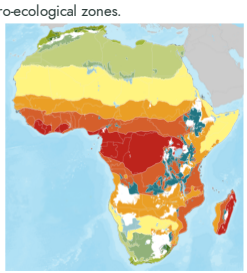


Target groups

Breeders

Ethical Meat Processing: Humane Slaughtering and Meat Inspection

Enhance meat quality while prioritizing animal welfare.

The technology focuses on humane slaughtering practices in the meat processing industry. It ensures that animals are killed swiftly and without suffering, adhering to ethical standards.

Bleeding of a humanely stunned small ruminant (FAO)

International Livestock Research Institute (ILRI)
Adeniyi Adediran

This technology is TAAT1 validated.

8·9 Scaling readiness: idea maturity 8/9; level of use 9/9

Gender assessment 4

Climate impact 5

Problem

- Animals often face mistreatment during transportation and slaughter,
- Stress and suffering experienced by animals can lead to biochemical changes, affecting the flavor and shelf life of the meat.
- Many slaughterhouses fail to comply with humane slaughtering regulations,

Solution

- It advocates for the use of suitable methods and equipment for transporting animals.
- Animals are provided with overnight rest in appropriately sized holding pens.
- Emphasis is placed on bleeding the animal within one minute of unconsciousness, ensuring a swift and humane process.
- All stages of the slaughtering and carcass dressing process are subject to certified meat inspection.

Key points to design your project

To integrate humane slaughtering and meat inspection technology into your project, follow these steps:

- Conduct awareness campaigns on the benefits of humane slaughtering and improved meat inspection.
- Develop investment and regulatory frameworks with public and private entities.
- Provide training for slaughterhouse operators and meat inspectors.
- Facilitate access to low-interest credit for modernizing facilities.

Cost: $$$ **2,000—2,500**
USD
Goat and sheep slaughter slab

ROI: $$$ **30 %**
Per animal

25—35 %
Dressed meat value added

IP
Open source / open access

Technology from

ProPAS

Commodities

Livestock

Sustainable Development Goals

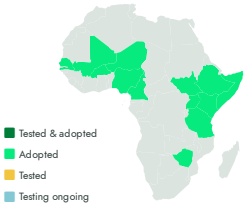
2 ZERO HUNGER

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Categories

Transformation, Practices, Agri-food processing

Tested/adopted in



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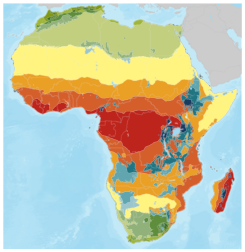

Target groups

Breeders

Livestock technologies Toolkit

https://taat.africa/zmg

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).

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