

ABC Grower Biomineralization of weeds for soil improvement

Solar-Powered, Cost-Effective, and Ecologically Smart BioFertilizer for Thriving Crops and Sustainable Agriculture

ABC Grower is a biotechnology that extracts nutrients from weeds using positive microorganisms (EM). These nutrients are formulated to enhance crop growth, tailored for tropical soils. Powered by solar energy, it reduces fertilizer production time from 60 to 14 days, lowers costs by 10 to 20 times, and adds economic value to weeds for farmers.



SOCIETE DE DEVELOPPEMENT DE L'AGRICULTURE DURABLE (SDAD SARL)
Bienvenu Chabi ADJE



This technology is **pre-validated**.

9•8



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

Cost: \$\$\$ **8 USD**

Initial cost

ROI: \$\$\$ **20 %**

Benefit

1,500 USD

40 %

15 Years



Production Kit purchase

Benefit for the kit purchase

Lifespan

Patent granted

Problem

- Climate change accelerates land degradation, threatening agricultural productivity and food security.
- Farmers using chemical inputs face poverty and environmental risks from heavy metal accumulation.
- Low adoption of compost in organic farming is due to lengthy production time, high water and labor requirements, and logistical challenges, including high costs and quantity demands.

Solution

- Cost Reduction: Significantly lower fertilization costs alleviate financial burdens for farmers.
- Improved Efficiency: Precise biofertilizer formulation enhances agronomic efficiency, surpassing conventional methods.
- Solar Energy: Solar energy reduces organic fertilizer production time from 60 to 14 days, simplifying production.
- Economic Valorization: Weeds in fields gain economic value, benefiting farmers economically.

Key points to design your business plan

This technology is beneficial for three main groups: manufacturers, resellers, and end users:

- **Manufacturers:** Producing ABC Grower technology offers a sustainable, cost-effective solution, positioning them as leaders in eco-friendly agriculture. Efficient transportation and storage are crucial.
- **Resellers:** Selling ABC Grower fosters engagement and aids in food security and poverty reduction. Efficient logistics are vital for success.
- **Users:** ABC Grower enhances productivity and sustainability. Collaboration with sellers is key, with profits estimated at USD 8 per unit.

Commodities

All Crops

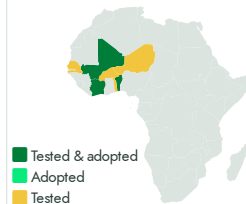
Sustainable Development Goals



Categories

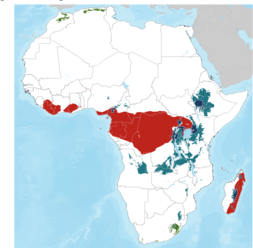
Production, Inputs, Fertilizer

Tested/adopted in



Where it can be used

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



Target groups

Farmers, Sellers

Gender assessment



Climate impact



ABC Grower

<https://e-catalogs.taatafrica.org/com/technologies/abc-grower-biomineralization-of-weeds-for-soil-improvement>

Last updated on 19 August 2024, printed on 22 August 2024

Enquiries techs@taat-africa.org

Urea deep placement Nitrogen management for Efficient Rice Fertilization



AfricaRice

Africa Rice Center
Sali Atanga Ndindeng

Boost rice yields and save on fertilizer costs through efficient nitrogen management

Deep Urea Placement involves drilling urea granules into rice fields, optimizing nutrient uptake, soil fertility, and productivity. Placed 7 to 14 centimeters deep, it ensures consistent nitrogen supply, particularly suitable for lowland rice farming with clay soils.

This technology is **TAAT1 validated**.

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

Cost: \$\$\$ **0.4—0.8 USD**
per Kg

ROI: \$\$\$ **30 %**
increase in yield

0.25 ton Recommended rate per Ha	100—200 USD Equivalence cost for the recommended rate per Ha	10 USD plunger-type applicator	IP Open source / open access
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Technology from

ProPAS

Commodities

Rice

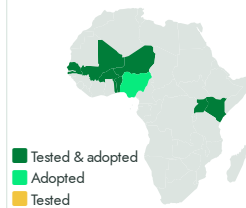
Sustainable Development Goals



Categories

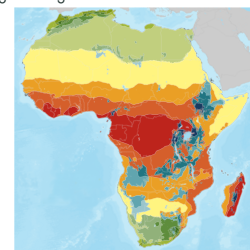
Production, Practices, Soil fertility, Yield improvement

Tested/adopted in



Where it can be used

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



Target groups

Farmers

Problem

- Inefficient Nitrogen Utilization.
- Environmental Pollution due to traditional urea application.
- Low Grain Productivity due to high nitrogen losses from current urea practices.
- High production costs without proportional yield increases.
- Limited irrigation in optimizing traditional urea application under varying rainfall.
- Climate disturbances causing by greenhouse gas emissions from conventional urea application.

Solution

- Large granules release nitrogen slowly, optimizing absorption by rice crops, reducing waste, preserving the environment and preventing contamination.
- Direct nitrogen delivery enhances soil fertility, promoting healthier rice crops and higher yields.
- Subsoil placement contributes to increased drought resilience in farming systems.
- Single-season application reduces labor and overall production costs.
- Suited for diverse agroecologies, benefiting both subsistence and commercial rice farmers.

Key points to design your business plan

This technology is beneficial for three main groups: manufacturers, resellers, and end users (farmers).

For manufacturers, efficient production requires reliable suppliers for machinery and raw materials.

Resellers must navigate the market by sourcing Urea briquettes, efficient transportation, and storage.

Success across manufacturing, reselling, and user segments is driven by key partnerships and careful consideration of costs.

Gender assessment

Climate impact



Urea deep placement

<https://e-catalogs.taatafrica.org/com/technologies/urea-deep-placement-nitrogen-management-for-efficient-rice-fertilization>

Last updated on 22 August 2024, printed on 22 August 2024

Enquiries techs@taatafrica.org

Fertilizer Micro-Dosing to Enhance Yield and Use Efficiency

Small Doses, Big Yields



International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
Dougbedji Fatondji

The Fertilizer Micro-Dosing for Enhanced Yield and Efficiency Technology is a practice that involves applying small amounts of fertilizer in shallow holes at the base of each plant. This precise method is low-risk, affordable, and efficient.

✓ This technology is **TAAT1 validated**.

8·7

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

Cost: \$\$\$ **43 USD**

Opportunity cost per Ha

ROI: \$\$\$ **15–28 %**

Increase in yield



Trademark

Problem

- Nutrient deficiencies in millet and sorghum
- Inefficient and risky fertilizer application methods
- Insufficient nutrient replenishment and gradual soil fertility decline
- Crop failure risk due to drought discouraging fertilizer investment

Solution

- Addressing nutrient deficiencies in millet and sorghum
- Providing a low-risk and precise fertilizer application method
- Fostering rapid crop growth

Key points to design your business plan

Enhance your millet and sorghum cultivation through Micro-Dosing, a precise and low-risk fertilizer application. Estimate your fertilizer needs based on crop type and density, ensuring cost-effective production. Collaborate with agro dealers as main partners.

Gender assessment 4

Climate impact 7

Technology from

ProPAS

Commodities

Sorghum/Millet

Sustainable Development Goals



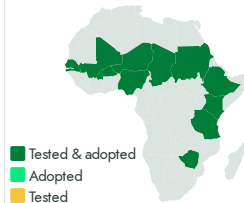
Categories

Production, Practices, Soil fertility, Yield improvement

Best used with

- [Millet and Sorghum Varieties for Better Nutrition and Stress Resistance >](#)
- [Dual-purpose Millet Varieties for Crop and Livestock Integration >](#)
- [Proactive Management of Striga Infestation >](#)

Tested/adopted in



Where it can be used

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



Fertilizer Micro-Dosing to Enhance Yield and Use Efficiency

<https://e-catalogs.taatafrica.org/com/technologies/fertilizer-micro-dosing-to-enhance-yield-and-use-efficiency>

Enquiries techs@taat-africa.org

Last updated on 22 May 2024, printed on 22 August 2024

Foliar micronutrient addition for healthier rice

Enhancing Yield and Nutrition with Micronutrient Sprays



AfricaRice

Africa Rice Center
Sali Atanga Ndindeng

The technology "Foliar Micronutrient Addition for Healthier Rice" is developed to address micronutrient deficiencies in rice crops. The application of micronutrients onto the rice canopy aims to enhance the harvest yield and nutritional quality of the grain without requiring extensive investment or infrastructure.

This technology is **TAAT1 validated**.

8•8

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

Cost: **41.1 USD**

Fertilizers

ROI: **7–30 %**

Yield increased

40 USD

Protective kits per person

30–45 USD

Knapsack sprayers with a tank of 20 liter



Open source / open access

Problem

- Crucial deficient of soil in rice-growing areas in crucial micronutrients like magnesium, calcium, copper, zinc, manganese, and boron.
- Low rice yield and micronutrient content
- Crucial deficient of soil in rice-growing areas in crucial micronutrients like magnesium, calcium, copper, zinc, manganese, and boron.
- Low rice yield and micronutrient content

Solution

- The technology supplements essential elements directly to plant leaves,
- Enhances both grain yield and nutritional value. It can be used in various soil conditions.
- The nutrients are quickly absorbed through the leaves, providing immediate benefits to the plant.

Key points to design your business plan

This technology addresses the challenge of low micronutrient content in rice, improving both grain yield and nutritional value.

- The cost structure includes various elements such as the price per kilogram of microelements in fertilizers, protective kits, knapsack sprayers, and renting tractor-mountable sprayers.
- Training is crucial for successful implementation, and collaboration with agro dealers is essential.
- The potential profit can be estimated based on positive outcomes observed in Brazil and Malaysia.

Technology from

ProPAS

Commodities

Rice

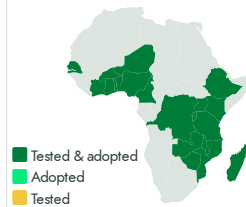
Sustainable Development Goals



Categories

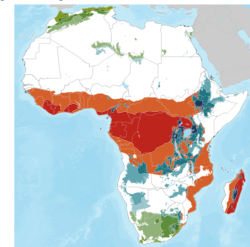
Production, Practices, Yield improvement

Tested/adopted in



Where it can be used

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



Target groups

Farmers

Gender assessment 3

Climate impact 6



Foliar micronutrient addition for healthier rice

<https://e-catalogs.taatafrica.org/com/technologies/foliar-micronutrient-addition-for-healthier-rice>

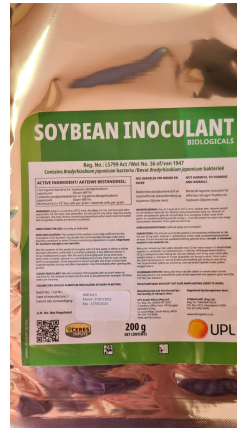
Last updated on 22 May 2024, printed on 22 August 2024

Enquiries techs@taatafrica.org

Soybean inoculant Rhizobium inoculant range, various strains

N-fixing bacteria to reduce chemical fertilizer use

Stimulant is a specialized range of inoculants designed for various legume crops. It capitalizes on a unique symbiotic relationship between the legume plants and a beneficial bacterium known as Rhizobia. This natural partnership results in the addition of significant nitrogen levels to the soil, ranging from 40 to 150 kg per hectare.



Stimulant company, UPL
Florent Clair

Commodities

Soybean, Groundnut, Cowpea,
Common bean

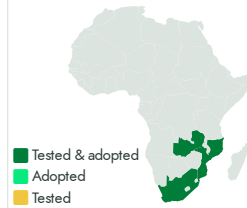
Sustainable Development Goals



Categories

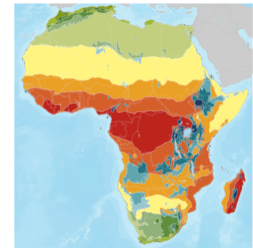
Production, Inputs, Inoculant

Tested/adopted in



Where it can be used

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



Target groups

Farmers

This technology is **pre-validated**.

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

Cost: **\$\$\$ 15—25 USD**
Product cost /ha

ROI: **\$\$\$ 35 %**
Yield increase



Open source / open access

Problem

- Nitrogen limitation hampers plant growth, particularly affecting legume crops.
- Soil degradation arises from excessive reliance on chemical fertilizers.
- These factors culminate in economic hardships and food insecurity among farmers.

Solution

- UPL Powder Carrier Technology shields bacteria from harsh environmental conditions like high temperatures and pH fluctuations.
- It holds the CERES organic certification, meeting stringent organic standards.
- Tailored packaging suits the needs of smallholder farmers, enhancing accessibility.
- The powder formulation extends shelf life to 9 months, reducing wastage and improving efficiency.

Key points to design your business plan

- Rhizobium Inoculant technology ensures cost-effective and sustainable farming, enhancing yields and soil health while reducing reliance on expensive fertilizers.
- It promotes economic benefits and contributes to environmentally friendly agriculture.
- Key partners required are suppliers of Rhizobium Inoculant.
- The cost structure ranges from 15 to 25 USD per hectare, depending on the crop and country.
- Storage requirements are minimal, with only 100g/ha needed on average, stored ideally at 4 to 24°C and away from pesticides.
- Estimating profitability is essential for assessing the impact of the product's use.

Gender assessment 4

Climate impact 7



Soybean inoculant

<https://e-catalogs.taatafrica.org/com/technologies/soybean-inoculant-rhizobium-inoculant-range-various-strains>

Last updated on 22 May 2024, printed on 22 May 2024

Enquiries techs@taatafrica.org

Maize-legume rotation and intercropping

Maize-legume: Savings in Soil, Growth in Profit

This practice utilizes legumes' biological nitrogen fixation to boost maize productivity. It enhances soil fertility, reduces weed infestation, and mitigates soil erosion. Certain legumes also combat parasitic weeds in maize, while tall maize crops regulate soil temperature and improve water efficiency.



AATF
Jonga Munyaradzi

Technology from

ProPAS

Commodities

Maize

Sustainable Development Goals



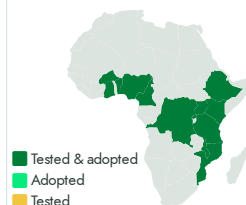
Categories

Production, Practices, Soil fertility

Best used with

- [Drought Tolerant Maize Varieties and Water Efficient Maize Varieties >](#)
- [Pre-plant blended fertilizers and nitrogen topdressing for maize >](#)

Tested/adopted in



Where it can be used

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



✓ This technology is **TAAT1 validated**.

7-8



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

ROI: \$\$\$ **0.5—1 tons**

maize grain yields increase in yield/ha

30—70 kilograms

of nitrogen carried over from soybean to maize crops



Unknown

Problem

- Subsistence farming faces soil nutrient deficiencies, such as nitrogen, hampering crop growth and yields.
- Commercial farmers grapple with high costs associated with nitrogen-based fertilizers, impacting profitability.
- Weed infestation competes with crops for resources, reducing overall yields.
- Pest and disease outbreaks can cause significant damage to crops, affecting both quality and quantity, leading to financial losses.
- Crop failures due to factors like drought or pest attacks can result in food scarcity, impacting household nutrition and well-being.

Solution

- Utilizes biological nitrogen fixation in legumes to enrich soil and promote healthier plant growth.
- Reduces dependency on expensive synthetic fertilizers through maize-legume rotation and intercropping.
- Effectively manages weed growth, minimizing infestation and enhancing overall crop productivity.
- Reduces harmful Striga weed infestations in maize crops through intercropping with specific legumes.
- Cultivating two complementary crops on the same land ensures a more reliable food supply and enhances food security for subsistence farmers.

Key points to design your business plan

Using the maize-legume rotation and intercropping technology enhances crop productivity, promotes sustainable agriculture, and contributes to food security and economic sustainability.

In order to use the technology efficiently, you should :

- Evaluate your farm's compatibility for mixed cultivation and choose suitable varieties tailored to local conditions.
- Obtain high-quality maize and legume seeds.
- Secure mineral fertilizers and legume inoculants if needed.
- Enhance outcomes by forging partnerships with agricultural development organizations, fertilizer providers, and agricultural service firms to offer assistance and facilitate distribution.

Gender assessment



Climate impact



Maize-legume rotation and intercropping

<https://e-catalogs.taatafrica.org/com/technologies/maize-legume-rotation-and-intercropping>

Last updated on 10 July 2024, printed on 22 August 2024

Enquiries techs@taat-africa.org

Conservation agriculture Minimal Tillage and Surface Mulching of Soils



Later ripening and better grain filling of wheat due to water conservation in no-till system (middle)

International Center for Agricultural Research in the Dry Areas (ICARDA)
Zewdie Bishaw

Conservation Agriculture for Sustainable Farming

Conservation agriculture (CA) includes minimal soil disturbance, surface residue retention, and crop rotation, proven effective in dryland wheat farming. It improves soil quality, water use efficiency, and yield stability, while reducing costs and energy. Additionally, CA enhances soil biodiversity, mitigates emissions, and sequesters carbon, benefiting both farmers and the environment.

This technology is **TAAT1 validated**.
 Scaling readiness: idea maturity: 8/9; level of use: 7/9

Cost: \$\$\$ **740 USD/ha**

Three-year average total production under CA

15 - 22 %	18 - 21 %	20 %	923 USD/ha	IP
Increase in yield	water use efficiency	increase in income	Increase in profit from wheat production	Open source / open access

Technology originally documented by

ProPAS

Commodities

Wheat

Sustainable Development Goals

Problem

- Excessive tillage and limited organic matter degrade soil quality.
- Droughts, intense rains, and overuse limit water availability.
- Dryland farming yields are low and vulnerable to water scarcity.
- Agriculture contributes to emissions and affects carbon storage.
- Traditional tillage leads to weed competition and yield reduction.

Solution

- Minimal soil disturbance, surface residue retention, and crop rotation.
- Enhanced soil quality, water efficiency, and yield stability.
- Mitigates drought and heat stress on crops.
- Saves water and reduces herbicide usage.
- Manages soil nutrients and pests effectively.
- Suitable for various soil types and water conditions.
- Increases resilience to environmental stresses.

Categories

Production, Practices, Pest management, Water management

Best used with

- [Yellow Rust and Stem Rust Resistant wheat >](#)
- [Hessian Fly Resistant Wheat Varieties >](#)

Key points to design your business plan

- Technology boosts crop yields, ensuring food security and profitability for farmers.
- Minimizes soil disruption and conserves moisture, reducing water and fertilizer needs.
- Prevents erosion and chemical runoff, promoting environmental sustainability.
- Lowers input costs and increases resilience to climate variability, benefiting farmers economically and environmentally.
- Accessible through agricultural extension services, research institutions, and local farming communities.
- Integration with complementary approaches, such as heat and drought-tolerant wheat varieties, is recommended for optimal results.

Tested/adopted in

■ Tested & adopted
■ Adopted
■ Tested

Where it can be used

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

Gender assessment 4

Climate impact 7

Cut and Bury Motorized weeders for rice production

Effortless Weed Control for Bountiful Harvests

The Motorized Weeders for rice production (cut and bury) technology eliminate weeds in rice crops. The rotating blades of the weeders ensure effective weeding while minimizing damage to rice crops and soil. These machines can be used from the germination of rice plants until the canopy closes.



AfricaRice

Africa Rice Center
Kalimuthu Senthilkumar

✓ This technology is **TAAT1 validated**.

8-8



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

Cost: \$\$\$ **550—750 USD**

Cut & bury with a 2-stroke petrol engine

ROI: \$\$\$ **80 %**

Labour-saving for weeding.



Open source / open access

Problem

- Labor-intensive manual clearing of paddy fields
- Inefficient weed control methods leading to reduced rice yields
- Limited access to affordable and effective mechanized weeders for smallholder rice farmers

Solution

- Introduction of motorized weeders for efficient clearing of paddy fields
- Adoption of mechanized weed control methods to increase rice yields
- Provision of affordable and effective mechanized weeders for smallholder rice farmers

Key points to design your business plan

The Motorized Weeders for rice production (cut and bury) technology appeals to manufacturers, resellers, and users (farmers).

For Manufacturers:

- Identify raw material suppliers and efficient transportation methods.
- Evaluate costs and target customers like resellers, cooperatives, and development projects.

For Resellers:

- Source equipment from reputable manufacturers and ensure proper transportation and storage.
- Determine costs and highlight benefits to attract farmers, development projects, and cooperatives.

For Users:

- Utilize motorized weeders to enhance farming efficiency.
- Partner with sellers.

Technology from

ProPAS

Commodities

Rice

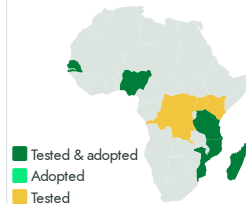
Sustainable Development Goals



Categories

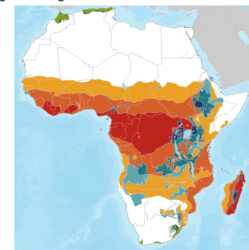
Production, Equipment, Land preparation, Weed control

Tested/adopted in



Where it can be used

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



Target groups

Farmers

Gender assessment

Climate impact



Cut and Bury

<https://e-catalogs.taatafrica.org/com/technologies/cut-and-bury-motorized-weeders-for-rice-production>

Last updated on 31 May 2024, printed on 22 August 2024

Enquiries techs@taatafrica.org

NoduMax Inoculant for Soybeans

Advanced Soybean Inoculation Solution for Sustainable Agriculture

This technology is a solid inoculant, which contains the industry-standard strain USDA 110 and includes a gum Arabic adhesive and user instructions. It is packed in 100 g packets sufficient for 10 to 15 kg soybean seed.



✓ This technology is **TAAT1 validated**.
7-7
Scaling readiness: idea maturity: 7/9; level of use: 7/9

Cost: \$\$\$ 3.20 USD For the purchase of 100g
ROI: \$\$\$ 1 USD Profit per unit for retailers
150,000 USD To build the NoduMax factory
120,000 USD To equip the NoduMax factory
💡 IP Unknown

- ### Problem
- Poor Root Nodulation and Low Biological Nitrogen Fixation (BNF) in Soybeans
 - Lack of Quality Inoculant in the Market
 - Limited Access to Affordable Inoculants in African Countries
 - Complex Application Procedures
 - Lack of Protein Sufficiency and Soil Fertility in Soybean Production
 - Clumping in Alternative Inoculation Methods

- ### Solution
- Promotes biological nitrogen fixation, reducing the need for expensive nitrogen fertilizers.
 - Ensures the presence of symbiotic rhizobium bacteria, optimizing root nodulation for improved nutrient absorption.
 - Enhances BNF, thereby boosting soil fertility and reducing reliance on synthetic fertilizers.
 - Promotes natural nutrient cycling in the soil, contributing to sustainable agricultural practices.

Key points to design your business plan

This technology is beneficial for three main groups: manufacturers, resellers, and end users (farmers).

Producing and selling NoduMax technology offer a cost-effective and sustainable solution for farmers, empowering diverse communities and contributing to global health and wellbeing. Using NoduMax ensures efficient and sustainable farming, boosting yields and soil health, while reducing reliance on expensive fertilizers.

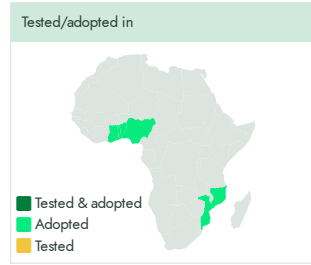
Gender assessment 👍 4
 Climate impact 👍 7

Technology from **ProPAS**

Commodities **Soybean**

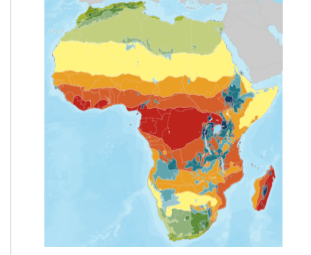
Sustainable Development Goals

Categories **Inputs, Inoculant**



Where it can be used

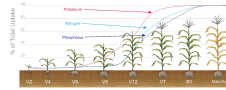
This technology can be used in the colored agro-ecological zones.



Target groups **Farmers**



Pre-plant blended fertilizers and nitrogen topdressing for maize



Unlock Maize Potential with Balanced Fertilizer Bliss!

Pre-plant blended fertilizers for maize is a technology involved to carefully mixed solid granular fertilizers, including urea, calcium ammonium nitrate, and potassium chloride, to meet maize crop nutrient needs.

✓ This technology is **TAAT validated**.

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

0.3—0.5 ton/ha Grain yield increase	30 % N uptake increase	57 % P uptake increase	IP Trademark
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Problem

- Traditional fertilizer application methods often lead to uneven nutrient distribution,
- Improper dosages and application schedules of mineral fertilizers are common,
- Inefficient nutrient application practices can lead to environmental losses, including nutrient runoff and leaching.

Solution

- Implementing pre-plant blended fertilizers and nitrogen topdressing for precise and efficient nutrient delivery,
- Providing specific nutrient blends to address inadequate nutrient supply for healthier and more productive maize crops.
- Promoting responsible fertilizer use through carefully formulated blends and split applications, minimizing wastage

Key points to design your business plan

Utilizing pre-plant blended fertilizers and nitrogen topdressing for maize offers a significant opportunity to improve crop productivity and sustainability. Key considerations for implementing this technology include:

- Identifying appropriate fertilizer formulations tailored to specific soil and crop needs,
- Considering delivery expenses to project sites across several countries, and forming partnerships with agricultural stakeholders to optimize outcomes.
- Additionally, integrating complementary technologies such as drought-tolerant maize varieties, herbicides for weed control, and specialized maize varieties can further enhance the benefits of this approach.

Gender assessment 4

Climate impact 5

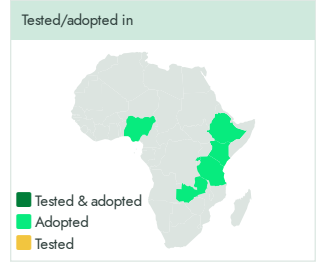
International Institute of Tropical Agriculture (IITA)
Jonga Munyaradzi

Technology from
ProPAS

Commodities
Maize

Sustainable Development Goals

Categories
Production, Inputs, Fertilizer



Where it can be used

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

Target groups
Farmers



Pre-plant blended fertilizers and nitrogen topdressing for maize
<https://e-catalogs.taatafrica.org/com/technologies/pre-plant-blended-fertilizers-and-nitrogen-topdressing-for-maize>

Enquiries techs@taatafrica.org

Last updated on 22 May 2024, printed on 22 August 2024

Relay intercropping of sweet potato with legumes



Harvest More, Worry Less with Sweet Potato-Legume Relay Intercropping

Relay intercropping of sweet potato with legumes is a farming method where two crops, sweet potato and legumes like beans or cowpeas, are grown together in the same field. Farmers can plant sweet potato first, then plant legumes later.

This technology is **TAAT1 validated**.

8•8



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



Open source / open access

Problem

- Reduced land productivity due to monoculture practices.
- Nitrogen deficiency in soil leading to lower crop yields.
- Vulnerability to crop failure and food insecurity due to pest attacks and droughts.

Solution

- Improved land productivity through efficient utilization of available resources.
- Enhanced soil nitrogen levels through symbiotic nitrogen fixation by legumes.
- Increased resilience to pest attacks and droughts through diversified cropping systems.

Key points to design your business plan

Relay intercropping of sweet potato with legumes offers a sustainable farming method, boosting crop yield, environmental resilience, and economic viability. To implement this technology effectively:

- Evaluate farm compatibility for mixed cultivation based on soil type and climate.
- Select appropriate sweet potato and legume varieties.
- Source high-quality seeds for both crops.
- Foster collaborations with agricultural organizations, fertilizer suppliers, and service providers for support and distribution.

Gender assessment 4

Climate impact 7



International Potato Center (CIP)

Kwikiriza Norman

Technology from

ProPAS

Commodities

Sweet Potato

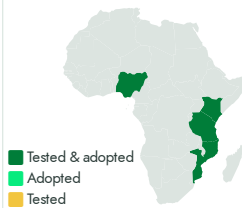
Sustainable Development Goals



Categories

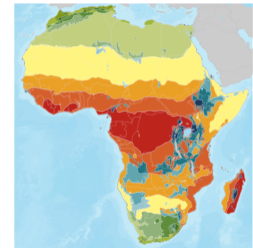
Production, Practices,
Pest control (excluding weeds),
Yield improvement

Tested/adopted in



Where it can be used

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



Target groups



Relay intercropping of sweet potato with legumes

<https://e-catalogs.taatafrica.org/com/technologies/relay-intercropping-of-sweet-potato-with-legumes>

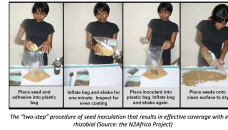
Enquiries techs@taatafrica.org

Last updated on 14 August 2024, printed on 22 August 2024

Seed Inoculation with Rhizobia

Boosting Crops, Nourishing Communities

Seed inoculation with elite rhizobium strains boosts legume yields by addressing nitrogen limitations through Biological Nitrogen Fixation (BNF). This cost-effective practice enhances crop production on small-scale farms in Africa, reducing reliance on expensive fertilizers, promoting environmental sustainability, and ensuring food, nutrition, and income security for farmers.



International Institute of Tropical Agriculture (IITA)
Paul Woomer

This technology is **TAAT1 validated**.

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

Cost: \$\$\$ **15,000 USD**

Total cost of manufacturing one ton of dry inoculant



Unknown

Problem

- **Nitrogen Deficiency:** Soils often lack sufficient nitrogen for plant growth.
- **Incompatible Rhizobia:** Newly introduced legume species may not be compatible with local rhizobia, leading to low yields.
- **Soil Health:** Maintaining soil fertility and health is a constant challenge.
- **Plant Diseases:** Farmers constantly battle against diseases that can devastate crops.
- **Sustainability:** Balancing economic viability with environmental sustainability is a major concern.

Solution

- **Biological Nitrogen Fixation:** Rhizobia address nitrogen deficiency.
- **Specific Strain Introduction:** Inoculation ensures the presence of the needed rhizobia.
- **Rhizobia Population Boost:** Inoculation guarantees optimal nodulation and nitrogen fixation.
- **Sustainable Farming:** Rhizobia promote sustainable agriculture.
- **Stress-Tolerant Strains Introduction:** Inoculation mitigates effects of stress on nitrogen-fixing symbiosis.

Key points to design your business plan

Manufacturer: Focus on R&D for effective, regional strains, high-quality production with strict quality control, and complying with regulations. Research target markets, price competitively, and design user-friendly packaging with local language instructions. Build a reliable distribution network, potentially using cold chain management for hot climates.

Reseller: Partner with reputable manufacturers and extension agencies. Develop a sales & marketing strategy focused on farmer education. Train staff on product knowledge, storage/handling, and communication. Maintain proper inventory levels and consider credit options for farmers (especially women). Ensure cool and dry storage facilities.

Farmer: Assess your legume crop and soil fertility to see if inoculants are beneficial. Do a cost-benefit analysis considering yield increase and long-term soil health. Purchase inoculants from reputable resellers who guarantee quality and proper storage.

All Parties: Emphasize the environmental benefits (reduced fertilizer reliance) and use local language communication materials to educate farmers about this technology and its application.

Technology from

ProPAS

Commodities

Soybean, Common bean

Sustainable Development Goals



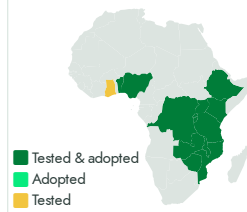
Categories

Production, Practices, Soil fertility, Yield improvement

Best used with

- [Climbing Bean with High Yield and N Fixation >](#)
- [Biofortified Beans for Improved Nutrition >](#)
- [Specialty Fertilizer Blends for Common Bean >](#)

Tested/adopted in



Where it can be used

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



Gender assessment 4

Climate impact 7



Seed Inoculation with Rhizobia

<https://e-catalogs.taatafrica.org/com/technologies/seed-inoculation-with-rhizobia>

Last updated on 22 May 2024, printed on 22 August 2024

Enquiries techs@taatafrica.org

Specialty blended fertilizers for root and tuber crops

Special fertilizer for root and tuber crops

Specialty Blended Fertilizers for Root and Tuber Crops” are custom fertilizers that provide essential nutrients to address soil deficiencies in Sub-Saharan Africa. They are designed for sweet potato and cassava farming, promoting efficient nutrient use, root growth, and overall crop health.



International Institute of Tropical Agriculture (IITA)
Paul Woomer

✓ This technology is **TAAT1 validated**.

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

16 to 26 ton per hectare

sweetpotato yield increase



Open source / open access

Technology from

ProPAS

Commodities

Sweet Potato, Cassava

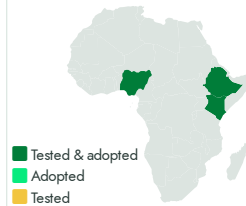
Sustainable Development Goals



Categories

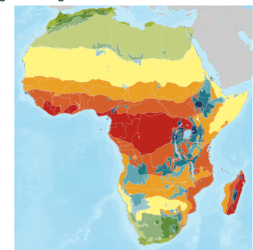
Production, Inputs, Fertilizer

Tested/adopted in



Where it can be used

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



Target groups

Farmers

Problem

- **Soil Issues:** Many soils in Sub-Saharan Africa lack essential nutrients and suffer from low fertility, limiting the production of crops like sweet potato and cassava.
- **Insufficient Crop Resilience:** Crops like sweet potato and cassava are vulnerable to drought, pests, diseases, and stress, impacting their quality and yield.

Solution

- **Balanced Nutrient Supply and Crop-Specific Formulas:** These fertilizers provide essential nutrients to address soil deficiencies in Sub-Saharan Africa and are tailored to meet the specific needs of crops like sweet potato and cassava.
- **Enhanced Crop Health and Yield:** The right nutrient formula enhances crop productivity, quality, and resilience, helping them resist drought, pests, diseases, and stress.

Key points to design your business plan

Manufacturer: Set up a unit, hire staff, get licenses, conduct market research, develop a production plan, formulate pricing, secure raw materials, establish transportation and storage, collaborate with research institutions, partner with extension services and NGOs, factor in costs, and research subsidies.

Reseller: Establish a distribution network, train staff, develop a sales strategy, partner with agricultural associations, offer additional services, secure storage, establish delivery system, partner with local retailers, collaborate with extension services, and consider costs.

User Farmers: Learn about specialty fertilizers, assess soil fertility, develop a cropping plan, factor in costs, and partner with extension services, retailers, cooperatives.

Additional Considerations: Research government regulations, be mindful of environmental impact.

Gender assessment 3

Climate impact 7



Specialty blended fertilizers for root and tuber crops

<https://e-catalogs.taatafrica.org/com/technologies/specialty-blended-fertilizers-for-root-and-tuber-crops>

Enquiries techs@taatafrica.org

Last updated on 22 May 2024, printed on 22 August 2024

Specialty Fertilizer Blends for Common Bean

Boost your Bean Production Yield

Specialty Fertilizer Blends for Common Bean are custom fertilizers with essential nutrients like nitrogen, phosphorus, potassium, and sulfur. They address soil deficiencies in Sub-Saharan Africa and cater to the needs of common bean farming. This promotes efficient nutrient use, enhancing growth and overall crop health



Example of a fertilizer blend

Alliance



The Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT)
Boaz Waswa

✓ This technology is **TAAT1 validated**.



Scaling readiness: idea maturity unknown; level of use unknown



Unknown

Technology from

ProPAS

Commodities

Common bean

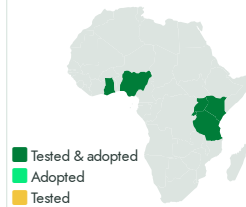
Sustainable Development Goals



Categories

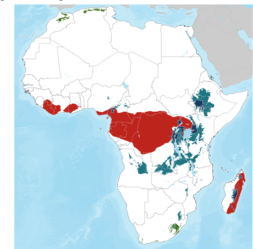
Production, Inputs, Fertilizer

Tested/adopted in



Where it can be used

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



Target groups

Farmers

Problem

- **Soil Issues:** Many soils in Sub-Saharan Africa lack essential nutrients and suffer from low fertility, limiting the production of crops like common beans.
- **Insufficient Crop Resilience:** Crops like common beans are vulnerable to drought, pests, diseases, and stress, impacting their quality and yield. Specialty Fertilizer Blends for Common Bean are designed to address these issues.

Solution

- **Balanced Nutrient Provision:** Specialty fertilizers offer essential nutrients like nitrogen, phosphorus, potassium, and sulfur, addressing soil deficiencies in Sub-Saharan Africa.
- **Crop Health and Yield Enhancement:** The right nutrient mix boosts common bean productivity and resilience, helping them resist drought, pests, diseases, and stress.
- **Specific Crop Needs and Nutritional Value:** By blending various fertilizers, specific formulas for common beans are created, enhancing yield and nutritional value.

Key points to design your business plan

Manufacturer: Set up a unit, recruit personnel, obtain licenses, conduct market research, develop production and pricing strategies, secure raw materials, establish transportation networks, collaborate with research institutions, and factor in costs.

Reseller: Establish a distribution network, train staff, develop a sales strategy, partner with agricultural associations, offer additional services, secure storage space, establish a delivery system, collaborate with extension services, and consider costs.

User Farmers: Learn about the benefits, assess soil fertility, develop a cropping plan, factor in costs, and partner with extension services.

Additional Considerations: Comply with government regulations and be mindful of the environmental impact.

Gender assessment



Climate impact



Specialty Fertilizer Blends for Common Bean

<https://e-catalogs.taatafrica.org/com/technologies/specialty-fertilizer-blends-for-common-bean>

Last updated on 22 May 2024, printed on 22 August 2024

Enquiries techs@taatafrica.org

Specialty Fertilizers and Local Blending for Banana and Plantain

Fertilize for Success: Banana & Plantain Boost

The technology of Specialty Fertilizers and Local Blending for Banana and Plantain involves creating tailored fertilizer blends to enhance banana and plantain yield in Sub-Saharan Africa. It adapts to soil characteristics, improves crop resilience, and increases productivity and nutritional value. It's a cost-effective solution for farmers.



International Institute of Tropical Agriculture (IITA)
Godfrey Taulya

This technology is **TAAT1 validated**.

8·9



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

6 ton/ha
yield increase



Open source / open access

Problem

- **Nutrient Deficiency:** Poor soil nutrients lead to low crop yields.
- **Environmental Stresses:** Crops are vulnerable to drought, pests, and diseases.
- **Climate Change:** Drought due to climate change affects crop health and productivity.

Solution

- **Nutrient Supply:** Provides balanced nutrients, improving crop growth and yield.
- **Crop Resilience:** Strengthens crop resilience to environmental stresses.
- **Climate Adaptability:** Helps crops withstand impacts of climate change.

Key points to design your business plan

- **Manufacturer:** Establish a blending-capable unit, hire staff, conduct market research, secure raw materials, collaborate with research institutions, and factor in costs.
- **Reseller:** Establish a farmer-reaching network, train staff, develop a sales strategy, offer additional services, secure storage space, establish a delivery system, and collaborate with extension services or NGOs.
- **User Farmers (Banana and Plantain Growers):** Learn about specialty blended fertilizers, assess soil fertility, develop a cropping plan, factor in costs, and partner with various services and manufacturers.

Technology from

ProPAS

Commodities

Banana/Plantain

Sustainable Development Goals



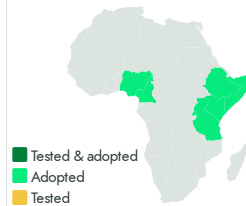
Categories

Production, Inputs, Fertilizer

Best used with

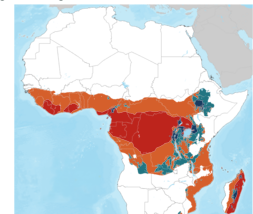
- [Improved Varieties of Plantain for Tropical Lowlands >](#)
- [Improved Varieties of Banana for the African Highlands >](#)

Tested/adopted in



Where it can be used

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



Gender assessment 4

Climate impact 7



Specialty Fertilizers and Local Blending for Banana and Plantain

<https://e-catalogs.taatafrica.org/com/technologies/specialty-fertilizers-and-local-blending-for-banana-and-plantain>

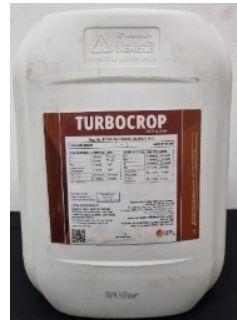
Enquiries techs@taat-africa.org

Last updated on 22 May 2024, printed on 22 August 2024

Turbocrop Field crop plant establishment biostimulant

Specialized biostimulant for root development and vegetative growth on field crops

Turbocrop is a specialized biostimulant product designed to enhance the development of roots and promote vegetative growth in crops. It is specifically formulated to improve plants' ability to withstand and cope with abiotic stress factors, such as extreme temperatures, drought, or nutrient deficiencies.



UPL Ltd.
Florent Clair

Commodities

Wheat, Maize, Groundnut, Common bean,
Other commodity

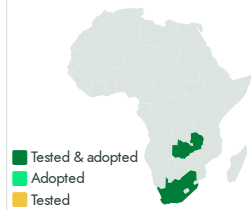
Sustainable Development Goals



Categories

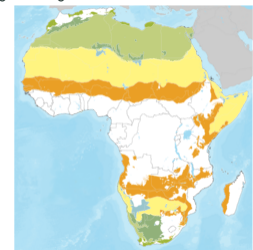
Production, Inputs, Fertilizer

Tested/adopted in



Where it can be used

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



Target groups

Farmers

This technology is **pre-validated**.

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

Cost: \$\$\$ **10 - 20 USD**

Fertilizer cost

460 Kg/ha

Yield increase

170 USD/ha

Benefit on maize in South Africa



Patent granted

Problem

- Imbalances in soil nutrients hinder optimal plant growth and productivity.
- Factors constrain the potential size and structure of plants, impacting overall yield.
- Restrictions in root development impede nutrient uptake, affecting plant health and productivity.
- Inefficiencies in nutrient absorption and utilization by plants result in suboptimal growth.
- Various factors contribute to limitations in crop yields, affecting agricultural productivity and food security.

Solution

- Stimulates root hair formation for enhanced nutrient absorption.
- Promotes stem elongation and leaf growth, particularly during tillering.
- Provides a balanced blend of essential nutrients for optimal crop growth.
- Improves nutrient utilization efficiency for better plant performance.
- Offers a holistic approach to plant growth, addressing root development, stem elongation, leaf formation, and nutrient optimization.

Key points to design your business plan

For Manufacturers:

- Producing Turbocrop technology addresses the urgent need for improved crop yields, nutrient absorption, and sustainable agriculture.
- Collaboration with the technology provider is necessary to secure the required license for production.
- Identifying reliable suppliers for raw materials is crucial for efficient production.
- The potential customer base includes wholesale distributors, development projects, government agencies, and NGOs.
- Forming strong partnerships with wholesale distributor networks is vital for business success.

For Users:

- Using this technology offers a safer and more environmentally sustainable alternative to traditional farming practices.
- Consider delivery expenses and possible import duties, as the technology is available in South Africa.
- The technology is priced at 10-20 USD per hectare for cost estimation.
- Engaging in partnerships with agricultural development institutes, fertilizer suppliers, and agricultural service companies can enhance outcomes and facilitate distribution.

Gender assessment

Climate impact



Turbocrop

<https://e-catalogs.taatafrica.org/com/technologies/turbocrop-field-crop-plant-establishment-biostimulant>

Last updated on 22 May 2024, printed on 22 August 2024

Enquiries techs@taatafrica.org

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.



Manure accumulated on the poultry house floor (left) and finished compost ready for use as an organic fertilizer (right)



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

Cost: \$\$\$ **5,000—10,000 USD**

drying and pelleting equipment

30,000 USD

organic fertiliser production plant of 15 ton per hour

3,000 USD

15 m3 anaerobic digester able to process 300 kg of poultry manure per day



Open source / open access

Technology from

ProPAS

Commodities

Poultry

Sustainable Development Goals



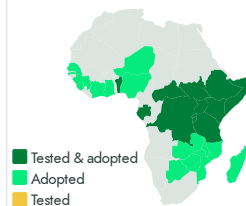
Categories

Production, Pre-production, Practices, Animal waste management

Best used with

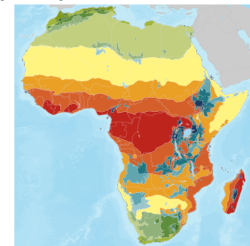
- [Biosecurity for Disease Prevention >](#)
- [Low-Cost Cage and Free-Range Containment >](#)

Tested/adopted in



Where it can be used

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



Problem

- **Pathogens and Unpleasant Odors:** Fresh chicken manure can contain harmful pathogens and emit an off-putting odor.
- **Underutilization:** Chicken manure is often unused due to these issues.
- **Environmental Impact:** Large-scale poultry farms generate significant manure, leading to unpleasant odors, groundwater pollution, and methane emissions.

Solution

- **Pathogen-Free Organic Fertilizer Production:** Converts chicken manure into safe, nutrient-rich organic fertilizer through composting, ensuring plant health and human safety.
- **Sustainable Environmental Impact Mitigation:** Transforms raw chicken manure into valuable organic fertilizer, reducing odors, preventing groundwater contamination, and mitigating methane emissions.
- **Cost-Efficient Waste Management:** Repurposes chicken manure into valuable organic fertilizer, reducing waste management costs and enhancing overall farm profitability.

Key points to design your business plan

For Farmers and Local Businesses:

Transform poultry manure into eco-friendly fertilizer for healthier soil and higher crop yields.

Steps to integrate this technology in your business:

- Source manure reliably.
- Set up composting facilities.
- Obtain necessary equipment.
- Train staff and adapt to local conditions.
- Research market and develop marketing strategy.
- Collaborate with local agricultural services.

Gender assessment 4

Climate impact 7



Value Addition to Poultry Manure

<https://e-catalogs.taatafrica.org/com/technologies/value-addition-to-poultry-manure>

Last updated on 22 May 2024, printed on 22 August 2024

Enquiries techs@taatafrica.org