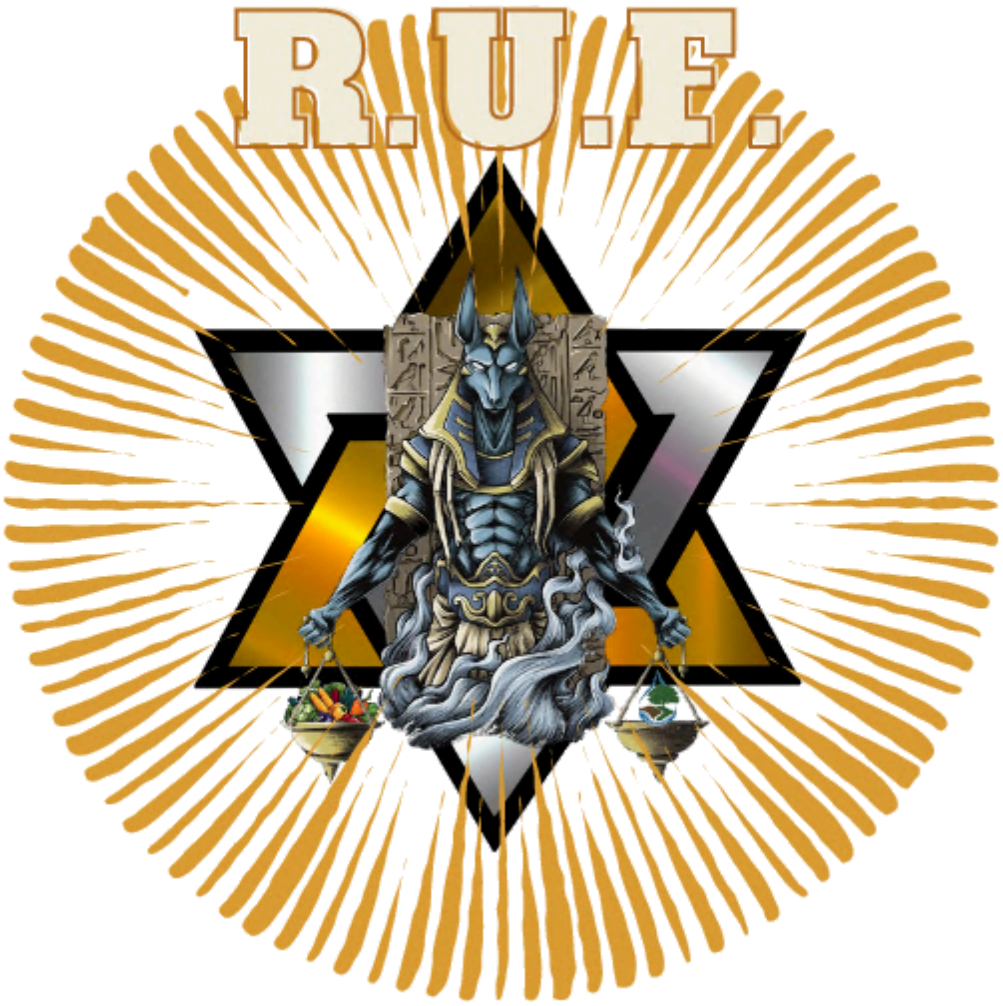
MÚA & I
MA'AT URBAN AGRICULTURE & INDUSTRIES

KEMETIC RASTAFARI TEMPLE
MA'AT 9
INCORPORATED

NORTH CENTRAL
SARE
Sustainable Agriculture
Research & Education

R.U.F.



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Module 1: Introduction to Regenerative Urban Farming

Legacy • Culture • Life

Regenerative Urban Farming begins with reclamation.

Long before regenerative agriculture became a modern term, Indigenous and original peoples practiced land stewardship rooted in observation, reciprocity, biodiversity, and intergenerational responsibility. Regeneration was not a market trend or branding strategy. It was a way of sustaining life.

This module situates regenerative agriculture within that historical lineage.

Our curriculum is not a collection of ideas. It is structured through applied work and sociopolitical analysis rooted in lived context. That context is part of its value.

Andrea Freeman's *Ruin Their Crops on the Ground: The Politics of Food in the United States, from the Trail of Tears to School Lunch* provides context for how food systems in the United States were reshaped through policy, displacement, and assimilation. Understanding this history clarifies why reclaiming food production at the community level is essential for long-term resilience. LaGarrett J. King's work, "When Lions Write History," reminds us that communities must tell their own stories in order to preserve cultural continuity and agency. RUF applies this principle to agriculture by restoring regenerative practice as a cultural inheritance rather than a commercial innovation. In the following modules.

RTCOTG Introduction: The Palatable Is Political

Core Context:
Food is political. What people eat, who controls distribution, and how nutrition policy is structured reflects power, governance, and cultural hierarchy.

RUF Alignment — Module 1 (Intro to RUF):

- Agriculture as culture
- Regeneration as reclamation
- Narrative, power, and food sovereignty
- Life-centered stewardship as cultural continuity

This frames the entire course.

Participants explore:

- The origins and legacy of regenerative land stewardship
- How food systems shape cultural identity and health outcomes
- The three pillars of RUF: decentralization, urban adaptation, and cultural significance
- Regeneration as protection and promotion of life across generations

By the end of this module, growers understand regenerative agriculture as a living tradition — one that builds soil, strengthens families, and sustains communities through conscious stewardship.

Referenced Texts:

Freeman, Andrea. *Ruin Their Crops on the Ground.* Metropolitan Books, 2024.
King, LaGarrett J. “When Lions Write History.” *Multicultural Education*, Fall 2014.

Module 2: Soil Ecology

Soil • Systems • Survival

Soil is a living ecosystem that sustains nearly 95% of the world’s food supply. Yet erosion, contamination, industrial agriculture, and climate pressures continue to degrade soil faster than it is replenished.

This module introduces soil as a biological system composed of microorganisms, minerals, fungi networks, and nutrient cycles that directly influence plant vitality, human nutrition, and climate stability.

The documentary “*Save Soil”*, led by Sadhguru, is incorporated to illustrate the global urgency of soil regeneration and the relationship between soil organic matter, water retention, and long-term food security. Healthy soil functions as both a nutrient engine and a climate stabilizer.

RTCOTG Chapter 1: Weapons of Health Destruction

Core Context:

Food systems can function as instruments of structural harm. Nutritional policy, commodity distribution, and dietary restructuring contribute to long-term health disparities.

RUF Alignment — Module 2 (Soil Ecology):

- Nutrient density begins in soil
- Industrial depletion and metabolic disease
- Rebuilding soil biology to rebuild human health

Healthy soil = preventive health infrastructure.

Participants explore:

- Soil horizons and the formation of topsoil
- Causes and global impacts of soil degradation
- Macronutrients and micronutrients essential for plant growth
- Natural soil amendments and regenerative fertility practices
- Mycorrhizal fungi and underground nutrient communication networks

By the end of this module, growers understand soil as a dynamic living system and gain practical tools to rebuild fertility, increase nutrient density, and steward land in ways that promote ecological resilience.

Module 3: Water Ecology

Water • Survival • Infrastructure

Water is essential for life, agriculture, public health, and ecosystem stability. This module examines water as both a biological necessity and a structural resource. Participants explore global water scarcity trends, groundwater systems, aquifers, surface water sources, and the decline of local waterways such as the White River in Indianapolis.

Chapter 2 of *Ruin Their Crops on the Ground*, “Survival Pending Revolution,” is assigned to this module to examine how food and resource access have historically shaped survival conditions. The chapter provides context for understanding how infrastructure, policy decisions, and resource distribution influence long-term community stability.

RTCOTG Chapter 2: Survival Pending Revolution

Core Context:
Communities historically developed survival strategies within constrained systems while advocating structural change.

RUF Alignment — Module 3 (Water Ecology):

- Resource scarcity and adaptation
- Water as survival infrastructure

- Regenerative responses to structural neglect

RUF trains growers in resilience within imperfect systems.

Participants explore:

- Global water scarcity projections and climate impacts
- Groundwater, aquifers, and water tables
- Surface water decline and infrastructure failure
- Nutrient pollution, eutrophication, and pH balance
- Waterborne illness and contamination risks
- Rainwater harvesting methods and legal considerations
- Natural and mechanical water filtration systems

By the end of this module, growers understand water as ecological infrastructure and gain practical tools to conserve, harvest, filter, and steward water in regenerative systems that promote long-term resilience.

Module 4: Foundational Understanding of Plants

Structure • Ecology • Stewardship

Regenerative Urban Farming requires plant literacy.

Before growers can regenerate soil or increase yields, they must understand how plants function as living systems. This module builds a foundational understanding of plant anatomy, ecological relationships, and crop management principles that guide successful regenerative practice.

Participants study the structure and function of plants roots, stems, leaves, flowers, and fruit, and how each part contributes to nutrient uptake, photosynthesis, reproduction, and yield formation. Special attention is given to mycorrhizal fungi and underground mycelial networks, which connect plants, facilitate nutrient exchange, improve soil structure, and enhance resilience.

This module also introduces plant identification and classification. Understanding plant families such as Fabaceae, Solanaceae, Brassicaceae, Cucurbitaceae, and Amaranthaceae helps growers anticipate nutrient needs, pest patterns, and companion relationships. Cultivar differences, such as determinate and indeterminate tomatoes, illustrate how plant genetics influence maintenance and productivity.

Chapter 3 of "Ruin Their Crops On The Ground" is used for Module 4 ***AND*** *Module 5.*

RTCOTG Chapter 3: Americanization Through Homemaking

Core Context:
Food and domestic education were used to assimilate communities into dominant cultural norms. Diet became a tool of cultural standardization.

RUF Alignment — Module 4 (Understanding Plants):

- Restoring plant knowledge
- Reclaiming culturally significant crops
- Agricultural literacy as cultural preservation

Plant education becomes reclamation.

Participants explore:

• Plant anatomy and photosynthesis
• Root systems and mycorrhizal fungal networks
• Annuals, perennials, and biennials
• Crop families and their shared characteristics
• Growing conditions for common garden crops
• Pest and disease awareness within regenerative systems
• Planning gardens based on life cycles and yield expectations

The module integrates practical growing knowledge — including spacing, sunlight requirements, soil pH, watering consistency, and disease management — while reinforcing ecological awareness.

By the end of this module, growers understand plants as interconnected biological systems. This knowledge strengthens decision-making, improves crop planning, and supports regenerative cultivation rooted in observation, balance, and long-term stewardship.

Module 5: Forgotten Foods

Memory • Resilience • Cultural Continuity

Forgotten Foods centers on remembrance.

Amaranth, Beni Imo, and Jerusalem Artichoke are heritage crops that sustained communities across continents through drought, migration, and economic hardship. Each represents agricultural knowledge shaped by observation, biodiversity, and intergenerational stewardship.

This module situated these crops within their historical and archaeological lineage.

Amaranth was cultivated for thousands of years in Mesoamerica, Africa, and Asia as both staple grain and ceremonial food within diverse polyculture systems.
Beni Imo became foundational to Okinawan agriculture in the 17th century, supporting communities during scarcity and shaping regional dietary patterns associated with longevity.
Jerusalem Artichoke was cultivated by Indigenous peoples of North America for its perennial growth, soil adaptability, and reliable caloric production, later spreading through global trade networks.

*Chapter 3 of “Ruin Their Crops On The Ground” is used for Module 4 **AND** Module 5.*

RTCOTG Chapter 3: *Americanization Through Homemaking*

CORE CONTEXT

Domestic education and federal food programs were used to standardize diet and reshape cultural practices. Through homemaking curricula and nutrition campaigns, food preparation became a vehicle for assimilation, encouraging conformity to dominant agricultural commodities and cooking norms while displacing traditional foodways.

RUF ALIGNMENT- (Module 5 Forgotten Foods)

- Restoring heritage crops disrupted by institutional standardization
- Reclaiming agricultural memory through culturally rooted foods
- Reintroducing biodiversity through amaranth, Beni Imo, and Jerusalem artichoke
- Preserving culinary traditions and intergenerational knowledge
- Growing climate-resilient, nutrient-dense crops that strengthen food autonomy
- Cultivation becomes cultural continuity.

Participants explore:

• Historical origins and archaeological evidence
• Trade routes and cultural exchange
• Culinary traditions and preservation methods
• Adaptability and food security applications
• Growing, harvesting, and processing practices
• Nutritional properties that support metabolic and digestive health

Forgotten Foods demonstrates that regeneration includes restoring agricultural memory. Cultivating these crops reconnects growers to enduring traditions while strengthening biodiversity, resilience, and community food autonomy.

By the end of this module, participants understand heritage crops as living inheritances that sustain both land and culture across generations.

Module 6: Planting & Growing Basics

Planning • Precision • Production

Planting & Growing Basics transforms intention into execution.

Successful regenerative farming begins with informed planning. Understanding grow zones, seasonal timing, plant spacing, and yield projections allows growers to move beyond guesswork into strategic cultivation. This module provides the practical framework necessary to design productive gardens rooted in ecological awareness.

Chapter 4 of *Ruin Their Crops on the Ground*, “The Unbearable Whiteness of Milk,” is assigned to this module. The chapter examines how federal nutrition policy elevated specific agricultural commodities as universal

dietary standards, shaping production patterns and influencing national consumption habits. Participants explore how centralized subsidy structures affect what is grown, distributed, and normalized in institutional settings.

RTCOTG Chapter 4: *The Unbearable Whiteness of Milk*

Core Context
Federal nutrition policy elevated specific agricultural commodities as universal dietary standards, shaping production patterns, institutional menus, and national consumption habits. Subsidy structures influenced what was normalized in schools and public programs, often narrowing dietary diversity.

RUF Alignment — Module 6 (Planting & Growing Basics):

Planning crop diversity beyond subsidy-driven models

Designing gardens around climate, culture, and household nutrition

Strategic yield calculations based on real consumption needs

Production decisions reflect community values and ecological awareness.

This context strengthens planting decisions by encouraging crop diversity, nutrient density, and culturally responsive food production.

Participants learn how to evaluate growing space based on sunlight duration, soil condition, rainfall patterns, frost dates, and square footage. Using planting calendars, yield charts, and square foot gardening methods, growers calculate how much to plant based on household consumption and available land.

This module emphasizes:

- Understanding grow zones (Indiana 6a, Georgia 8b, and beyond)
- Calculating seasonal timelines using frost dates and maturity periods
- Evaluating soil pH, drainage, and nutrient levels
- Planning gardens using square foot and container systems
- Estimating per-person yield and consumption needs

Growers study:

- Germination timelines and maturity cycles
- Indoor seed starting with heat, light, and airflow
- Direct sowing methods and thinning practices
- Companion planting and intercropping for pest balance and efficiency
- Heirloom versus genetically modified seed considerations

By the end of this module, participants understand how to design a planting plan aligned with climate, space, and nutritional needs. They move into structured, regenerative production — cultivating food systems that are organized, efficient, and ecologically responsive.

Module 7: Regenerative & Sustainable Agriculture

Systems • Design • Implementation

Regenerative & Sustainable Agriculture moves RUF from theory to applied systems.

This module introduces the ecological design principles and growing methods that restore soil health, increase biodiversity, conserve water, and strengthen food production in urban and rural environments. Regeneration is approached as a systems framework — integrating biology, infrastructure, and intentional design.

RTCOTG Chapter 5: School Food Failure

Core Context:
Institutional feeding programs often reinforce poor nutritional outcomes and dependency on processed commodities.

RUF Alignment — Module 6 (Regenerative & Sustainable Agriculture):

- Local production as institutional alternative
- Hügelkultur, composting, and regenerative design
- Growing nutrient-dense food for schools and communities

Production shifts the equation.

Participants explore regenerative agriculture as a conservation and rehabilitation approach that emphasizes:

• Soil health and compost-based fertility
• Biodiversity through intercropping and crop rotation
• Water conservation and harvesting systems
• Carbon sequestration through living root systems
• Sustainable, decentralized food production

Core regenerative methods include composting, minimal tilling, perennial planting, intercropping, and conservation farming. Emphasis is placed on restoring soil biology and protecting microbial life rather than relying on chemical inputs.

The module introduces scalable growing systems suitable for urban adaptation:

• Vertical farming and hydroponics
• Aquaponics systems integrating fish and plant cycles
• Square foot gardening for high-density growing
• Food forests modeled after layered natural ecosystems
• Hügelkultur beds using biodegradable biomass for moisture retention
• Container systems including bucket gardens and pallet structures

Growing styles such as permaculture and biodynamic agriculture are examined as ecological design philosophies that integrate land stewardship, natural cycles, and long-term soil building.

Participants study:

• Composting systems and proper green-to-brown balance
• Sustainable container construction
• Raised bed engineering using reclaimed materials
• Hügelkultur layering techniques
• Companion planting strategies
• Crop density planning and yield efficiency

By the end of this module, growers understand how regenerative design transforms small spaces into productive ecosystems. Participants leave with practical frameworks for building low-input, high-yield systems that conserve resources, increase productivity, and strengthen local food autonomy.

Regeneration becomes operational — not abstract — through applied design and intentional cultivation.

Module 8: Natural Garden Maintenance

Observation • Discipline • Ecological Balance

Natural Garden Maintenance teaches that regeneration requires consistency.

Healthy gardens thrive through disciplined observation, early intervention, and ecological awareness. This module focuses on preventative care, plant shaping, pest balance, and natural input strategies that strengthen crop health while minimizing chemical dependency.

RTCOTG Chapter 6: Dee-licious

Core Context:
Food industry marketing, processed food normalization, and corporate influence shape public taste and consumption patterns.

RUF Alignment — Module 7 (Natural Garden Maintenance):

- Whole food literacy
- Growing clean food without synthetic dependency
- Protecting soil microbiology and crop integrity

Taste returns to the land.

Participants learn that maintenance should occur during cooler hours — early morning or evening — when plants are less stressed. Regular inspection improves yields, reduces disease pressure, and allows growers to respond before problems escalate.

Core concepts include:

• The difference between pruning and excessive defoliation
• Strategic leaf removal to improve airflow and reduce fungal disease
• Crop-specific shaping techniques for tomatoes, peppers, basil, and eggplant
• Timing interventions to protect photosynthesis and structural strength

The module also explores pest ecology. Instead of reactive eradication, growers learn to understand insect life cycles, soil organisms, and wildlife interactions as part of a balanced system.

Natural control strategies include:

• Companion planting and intercropping
• Crop rotation and biodiversity
• Physical barriers and fencing
• Beneficial insect attraction
• Botanical sprays and mineral-based treatments
• Soil-supportive amendments used with precision

By the end of this module, participants understand maintenance as stewardship. They develop the ability to read plant signals, respond with intention, and preserve long-term productivity through ecological balance.

Maintenance becomes protection — sustaining soil health, plant vitality, and regenerative integrity over time.

Module 9: Harvesting & Preservation

Timing • Stewardship • Continuity

Harvesting & Preservation teaches that the growing cycle does not end at maturity — it transitions into stewardship.

This module equips participants with crop-specific harvesting techniques, timing strategies, and preservation methods that protect flavor, nutritional value, and future seed stock. Proper harvesting strengthens plant longevity, increases yield consistency, and supports long-term food autonomy.

Participants learn that harvesting should occur during the coolest parts of the day to reduce plant stress and maintain quality. Crop observation becomes essential — monitoring ripeness, firmness, color development, and disease presence before cutting.

RTCOTG Chapter 7: What’s Law Got To Do With It?

Core Context:
Legal frameworks govern food distribution, subsidy structures, and agricultural power dynamics.

RUF Alignment — Module 8 (Harvesting & Distribution):

- Cooperative distribution models
- MUFN™ as decentralized infrastructure
- Policy awareness and community agency

Harvest becomes governance literacy.

Core principles include:

• Understanding vine-ripened versus green harvesting
• Frequency-based harvesting to stimulate continued production
• Sanitizing tools to prevent disease spread
• Daily monitoring for optimal yield

Crop-specific guidance covers:

• Tomatoes, peppers, cucumbers, beans, and okra
• Bulb crops such as onions and garlic
• Leafy greens for continuous harvest
• Timing differences between fruiting and seed-saving harvest

Participants also develop end-of-season strategies:

• Planning 6–8 weeks before expected frost
• Removing diseased material
• Seed collection and storage
• Preparing crops for overwintering
• Garden cleanup and soil protection

The module extends into food preservation as an extension of regenerative practice.

Growers are introduced to:

• Refrigeration versus room-temperature storage
• Cold and dry storage systems
• Canning fundamentals and jar rotation
• Pressure versus boiling methods
• Fermentation as a probiotic preservation method

Preservation is framed as continuity — extending the life of harvest while strengthening household resilience. Participants understand how to safely process, store, and rotate food to reduce waste and ensure year-round nourishment.

By the end of this module, growers see harvesting as part of a complete regenerative cycle. Food is gathered with intention, preserved with knowledge, and stored with foresight — sustaining families and communities beyond the growing season.

Forgotten Foods in Practice

How We Grew Them in Indianapolis (Zone 6a)
Within the RUF Framework

When we introduced Jerusalem artichokes, amaranth, and Beni Imo–style sweet potatoes into our Regenerative Urban Farming (RUF) system in Indianapolis, we did not treat them as novelty crops. We treated them as infrastructure.

We grew them using Hugelkultur High-Rise Gardens (HHRGs), GroTubes, and fabric pots because our goal was manageability, mobility, soil control, and harvest efficiency. What we discovered is that these forgotten foods did more than survive — they thrived.

Our Soil System: Designed for Regeneration and Harvest

The key to our success was the soil mix.

In our fabric pots and GroTubes, we used a loose, living blend:

- Screened topsoil
- Finished compost
- Pine fines or leaf mold
- Coarse sand or rice hulls

We inoculated with mycorrhizal fungi and incorporated charged biochar when possible. The goal was oxygen flow, microbial activity, and tuber expansion without compaction.

The real advantage came at harvest. Instead of digging and damaging roots in heavy clay, we flipped the fabric bags upside down. The soil fell apart easily, revealing clean, intact tubers. Harvest became efficient, visible, and teachable. Students could see the entire root structure and understand what healthy soil produces.

This is regenerative design in practice.

Jerusalem Artichokes (SunfRoots™)

We planted Jerusalem artichokes in late April to early May once soil temperatures stabilized. In fabric pots (15–25 gallon minimum), we planted tubers 4–6 inches deep.

They thrived in:

- Full sun
- Compost-rich loose soil
- Consistent but not excessive watering

By fall, after the first frost, we harvested.

The flip-and-dump method revealed dense clusters of tubers. The contained environment concentrated production and prevented the spreading behavior that sometimes makes sunchokes difficult in-ground.

In the RUF model, this showed something important:

Jerusalem artichokes can be controlled, scaled, and harvested cleanly in urban systems. That makes them viable not just for backyard growers but for coordinated production through MUFN™.

Amaranth (Callaloo & Grain)

Amaranth performed exceptionally well in GroTubes.

We direct-sowed in late May. Once established, it grew aggressively in the summer heat. The vertical support of the GroTubes kept plants stable, and the loose soil encouraged strong taproot development.

We intentionally harvested callaloo throughout the season. We removed outer leaves consistently, never more than one-third of the plant at a time. This allowed for continuous regrowth.

All season, we harvested greens.

This demonstrated something critical in RUF:

High-density container systems can produce continuous leafy nutrition without requiring large land footprints.

Amaranth proved resilient, adaptable, and teachable.

Beni Imo–Style Sweet Potatoes

We planted slips in late May once soil temperatures reached 65°F.

In fabric pots, we planted:

- 1–2 slips in 10-gallon pots
- 3–4 slips in 20-gallon pots

The loose soil allowed tubers to expand freely. The vines spilled over the sides of HHRGs, maximizing space efficiency.

At harvest (September–October), we again flipped the bags.

Instead of digging and damaging tubers, we separated them cleanly. The ease of harvest reduced waste and made yield assessment simple.

In RUF, that matters.

Efficiency determines scalability.

Why These Crops Thrived in the RUF Application

They thrived because RUF is designed around:

- Soil biology first
- Container adaptability
- Decentralized production
- Manageable harvest systems
- Climate-responsive planning

We did not force these crops into industrial patterns. We created conditions aligned with their natural resilience.

The mobility of containers allowed us to:

- Adjust sunlight exposure
- Protect crops from storms
- Demonstrate techniques in different locations
- Teach hands-on without disturbing permanent beds

This flexibility is powerful in urban environments.

The Larger Vision: RUF™ & MUFN™

Why the Ma’at Urban Farm Network™ (MUFN™) Is Powerful and Exciting

The Ma’at Urban Farm Network™ (MUFN™) is powerful because it proves that meaningful food production does not require vast acreage, heavy machinery, or centralized control. It demonstrates that small, distributed growing spaces—yards, school grounds, vacant lots, patios, and community corners—can function collectively as a regenerative food system.

What makes MUFN™ exciting is its decentralized design. Instead of relying on one large farm, it connects multiple micro-sites into a coordinated network. Each site contributes to food production, education, and soil restoration. Together, they create resilience. If one site struggles, others continue producing. This distributed structure mirrors natural ecosystems—diverse, adaptive, and difficult to disrupt.

MUFN™ is also powerful because it reduces barriers to entry. The systems used—Hugelkultur High Rise Gardens™, container production, perennial crops like Jerusalem artichokes, and low-input growing methods—allow individuals and families to participate regardless of land ownership, physical ability, or financial resources. It replaces dependency with participation.

Another reason MUFN™ stands out is that it pairs production with education. Every growing site doubles as a classroom. Students, elders, new growers, and experienced farmers all learn directly from living systems. Successes and failures are documented and shared. Knowledge moves horizontally—farmer to farmer, student to student.

MUFN™ is not just about vegetables. It is about soil regeneration, water stewardship, perennial food systems, and community capacity. It integrates ecological science with cultural awareness, acknowledging that food systems are connected to history, health, and economic stability.

Most importantly, MUFN™ demonstrates that regenerative agriculture can be implemented immediately, at small scale, without waiting for large institutional change. It gives communities the tools to act now.

That combination of decentralization, accessibility, education, ecological regeneration, and immediate action—is what makes the Ma’at Urban Farm Network™ both powerful and exciting.

What we demonstrated in Indianapolis is not just gardening technique, but a replicable system.

RUF allows growers to:

- Produce nutrient-dense food in small spaces
- Use scalable container systems
- Minimize harvest loss
- Maintain soil health year over year
- Teach visibly and practically

Through the Ma’at Urban Farm Network™ (MUFN™), these container-based and high-rise systems can be coordinated across multiple growers.

Imagine:

- Dozens of growers producing Jerusalem artichokes in controlled fabric systems

- Coordinated amaranth production for continuous greens and grain
- Sweet potatoes grown in standardized container volumes for predictable yield

Because harvest is clean and measurable, aggregation becomes realistic.

RUF becomes more than education.
It becomes distributed infrastructure.

What We Learned

Forgotten foods are not fragile relics.

They are:

- Heat tolerant
- Soil restorative
- Nutrient dense
- Container adaptable
- High-yield in regenerative systems

In Indianapolis clay soil, these crops thrived because we built a system that respected their biology.

Through RUF and MUFN™, these methods can scale:

From backyard
To school garden
To cooperative network
To regional production

Regeneration becomes organized.

And cultivation becomes continuity.

Learn More & Contact Us

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Free Google Classroom Demo Link: https://classroom.google.com/c/ODQ1NDE2NjU0Njc0?cjc=kniftcyd