ANT Systems™
AGRICULTURAL NANO-TECHNOLOGY



nanotern™

SMART SUBSOIL WATER RESERVOIR

Nanotern™ is a patented
product of ANT Systems™

70%

of **global fresh water** is consumed by the agriculture sector

9.25

billion liters of water is lost annually due to inefficient practices

50%

of the global population experiences severe **water scarcity**

Global water scarcity & climate change

are the two main challenges in agriculture today.

Rising drought and water scarcity demand urgent sustainable water solutions.

Customers face higher food prices, **farmers** battle lower yields and increased costs, and **companies** experience supply chain disruptions and soaring expenses.

Grows better with nanotern

Landscaping



FLOWER
Jasminum sambac



FLOWER
Tagetes



FLOWER
Petunias



FLOWER
Bougainvillea

Agriculture



Tomato



Strawberry



Lettuce



Peach

We are here to **revolutionize** the **industry**

by enabling farmers to grow crops without relying on inconsistent weather patterns and expensive irrigation.

Our advanced nanotechnology uses hydrophilic, **cross-linked 3D polymer network** that absorbs, stores, and slowly releases water in the soil.

Dry granules expand into a gel when exposed to rain or irrigation, keeping plants hydrated longer and more efficiently, even in water-scarce environments.



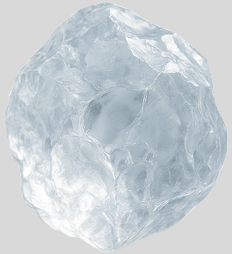
01 NANOTERN™ (UP CLOSE)

Nanotern is applied to the ground or area in a granule form



02 ABSORBS

Nanotern absorbs water and additives/fertilizer



03 STORES

Nanotern stores water within polymer network



04 RELEASES & ABSORBS AGAIN

Nanotern releases then absorbs water & additives/ fertilizer again

Product Overview

What is **nanotern?**

Nanotern™ is a biodegradable super absorbent polymer designed to act as an underground water reservoir for plants. By absorbing irrigation or rainwater and releasing it gradually, Nanotern reduces water stress and boosts plant resilience in drought-prone or soilless conditions.

Nanotern improves soil health, protects the root zone from extreme temperatures, and enhances yields, making agriculture more efficient, sustainable, and climate-resilient.

A proud product of ANT Systems™ Nanotern is engineered to solve one of farming's biggest challenges:
doing more with less water.



What is?
nanotern

01

INNOVATION

Nanotern is a biodegradable superabsorbent polymer

02

REVOLUTION

Nanotern absorbs excess water and nutrients, releasing them during droughts

03

ADAPTATION

Nanotern is compatible with all soil types, climates, and even soilless conditions

nanotern contributes to

Global Reforestation

As part of ANT Systems™ sustainable living plan, **Nanotern™ contributes to global reforestation**. Our aim is to support Africa's Great Green Wall to the UAE's mangrove restoration, and to individuals' own gardens and communities.

This biodegradable super absorbent polymer boosts soil hydration and nutrient retention, **helping young trees survive** drought, develop deeper roots, and thrive in degraded landscapes or soilless environments.



nanotern contributes to

United Nations

6/17 of UN Sustainable Development Goals





50%

up to water savings

1800x

maximum swelling capacity

25%

up to crop yield increase

7x

longer water retention compared to other products

BIODEGRADABLE

environmentally safe and biodegradable

3.5x

more strength underground compared to other products

Unique Features

01 BIODEGRADABLE

Only biodegradable superabsorbent polymer on the market

02 CUSTOMIZABLE

Customizable to specific soil conditions and climates

03 SUSTAINABLE

Supports eco-friendly farming practices







1 LIFECYCLE OF NANOTERN™



01

NANOTERN (UP CLOSE)

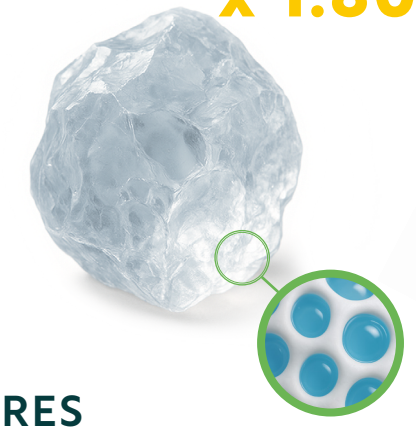
Nanotern is applied to the ground or area in a granule form



02

ABSORBS

Nanotern absorbs water and additives/ fertilizer



03

STORES

Nanotern stores water within polymer network



04

RELEASES & ABSORBS AGAIN

nanotern and soil types

Universal Adaptability

Nanotern™ is engineered for universal adaptability, making it effective across all major soil types; including sandy, loamy, clay, silty, peaty, and chalky soils.

Its performance remains consistent in a wide range of climates, from arid and semi-arid zones to temperate and tropical regions. The **United Arab Emirates** serves as a **perfect example** of Nanotern's capabilities: despite its extreme temperatures, limited rainfall, and predominantly sandy, nutrient-poor soils, Nanotern supports healthy plant growth by retaining moisture longer, reducing irrigation needs, and creating a more stable root environment. This versatility makes it an ideal solution for challenging agricultural and reforestation efforts around the world.



Product Range: Agriculture

NANOTERN™

Nanotern Agriculture is a **polyacrylate-based nanocomposite superabsorbent polymer** designed for advanced water retention in agriculture. It can absorb up to 1800 times its weight in water and release it gradually over 40 days. Compatible with all soil types, it remains active in soil for up to **2 years and supports 4–5 swelling-drying cycles**, ensuring consistent water availability during dry periods.

NANOTERN™ **Nutri**

Nanotern Nutri is a **cellulose-based** biodegradable superabsorbent polymer enriched with essential micro-nutrients like **boron, iron, and zinc,** providing superior water absorption and retention.

It absorbs **600–1800 times** its weight in water, and releases nutrients to plants for up to **40 days**, making it ideal for all soil types. Nanotern Nutri **fully biodegrades** within one year.

NANOTERN™ **Bio+**

NANOTERN Bio+ is a biodegradable, cellulose-based superabsorbent polymer designed to improve soil moisture management. It can retain **600–1800 times its own weight in water**, releasing it gradually over up to 40 days. The material fully decomposes within one year, leaving no residue in the soil and ensuring long-term, sustainable soil hydration without environmental impact.

NANOTERN™ **Custom**

Nanotern Custom is a superabsorbent polymer specifically formulated to meet the unique needs of your soil and application. By optimizing water retention and nutrient delivery, it enhances root development and improves overall agricultural and landscaping productivity through tailored performance.

Product Range: Aqua

NANOTERN™ AQUA

Nanotern Bio+ Agriculture Aqua is a liquid polymer-based system designed to improve soil moisture dynamics and work in harmony with natural soil processes. When applied through irrigation systems, the product is carried into the soil with the water and interacts with soil particles and pore structures. By forming a thin network layer on the surface, it slows down water infiltration into the soil and reduces evaporation from the topsoil layer. The liquid formulation does not create individually swelling particles. Instead, it forms a moisture-retaining system that is distributed within the soil structure.



Product Range: Agriculture

4 kg

Designed for hobby gardening, home cultivation; ideal for small-scale agricultural production areas.

15 kg

Optimized for medium and large scale agricultural applications; suitable for orchards, vineyards, cereals, legumes, and industrial farming areas.





Product Range: Agriculture

500 g
2 kg

Designed for hobby gardening, home cultivation, and potting applications; ideal for small-scale use.

Biodegradable

4 kg

An ideal solution for nurseries, greenhouses, and small-scale agricultural production areas.

15 kg

Optimized for medium- and large-scale agricultural applications; suitable for orchards, vineyards, cereals, legumes, and industrial farming areas.



Product Range: Agriculture Aqua

5 L

Small-scale farmers are suitable for use in areas such as orchards, vineyards, or various vegetable farms.

20 L

Suitable for drip irrigation applications in industrial agriculture for large-scale field and garden applications.

Biodegradable



Application Areas for Agriculture

APPLICATION MANUAL

01



LARGE SCALE FARMING

02



GREENHOUSES

03



HYDROPONIC SYSTEMS

04



TREE NURSERIES

05



VERTICAL FARMING

06



MARGINAL LANDS

Product Range: Landscaping

NANOTERN™

Nanotern Landscaping is a polyacrylate-based nanocomposite superabsorbent polymer designed to enhance water retention and promote healthy vegetation in landscaping projects.



AQUA

Nanotern Landscaping Aqua is an efficient liquid solution that improves soil moisture retention and irrigation performance in landscaping applications. Its uniform distribution and immediate action help maintain stable root zone moisture, supporting healthier plant growth and more efficient water use.



Product Range: Landscaping

500 g
2 kg

Home gardens, balconies, potted ornamental plants

4 kg

Residential landscaping applications

15 kg

Parks, municipal plantings, large estates



Product Range: Landscaping Aqua

5 L Home gardens, landscaping projects

20 L Commercial and residential landscaping, parks, sports fields.



Application Areas
for Landscaping

APPLICATION MANUAL

01



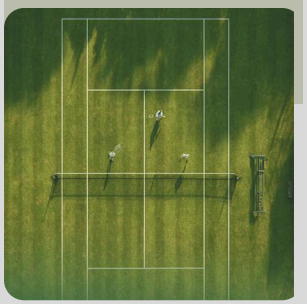
PARKS & URBAN STREET SCAPE

02



GOLF COURSES & TURF MANAGEMENT

03



SPORT COURSES & RECREATION

04



HOMESTEAD GARDENS

05



GREEN ROOF SYSTEMS

06



VERTICAL GARDENS

Product Summary

	Granule Size	Stays in Soil	Swelling	Biodegradable	Large Scale Farming	Greenhouse	Hydroponic Farming	Saplings	Landscaping	Drone
Nanotern™	Ø 15mm	2 year	x 1800	♻	✓	✓	✓	✓	✗	✓
Nanotern™ Bio+	Ø 30mm	1 year	x 1800	♻	✓	✓	✓	✓	✗	✓
Nanotern™ Nutri	Ø 15mm	1 year	x 1800	♻	✓	✓	✓	✓	✗	✓
Nanotern™ Custom	Ø 8–30mm	1–2 years	x 1800	♻	✓	✓	✓	✓	✗	✓
Nanotern™ Landscaping	Ø 8mm	2 years	x 1800	♻	✗	✓	✓	✓	✓	✗

Product Details

	Barcode	Granule Size
Nanotern™	8 684939 982006	Ø 15mm
Nanotern™ Bio+	3 684939 982020	Ø 30mm
Nanotern™ Nutri	8 684939 982037	Ø 15mm
Nanotern™ Landscaping	8 684939 982013	Ø 8mm
Nanotern™ Bio+ Aqua	8 684939 982136	
Nanotern™ Landscaping Aqua	8 684939 982129	

Ø8mm



Ø15mm



Ø30mm



Visual representation
of the granule size:

The Advantage Points

01 **WATER SAVINGS**

Efficient water usage, **reducing overall consumption**

02 **YIELD INCREASE**

Enhanced crop productivity and **higher yields**

03 **SALINITY RESISTANCE**

Tolerance to soil salinity, **maintaining crop health**

04 **ACTIVE AGENT RELEASE**

Controlled release of beneficial agents for **sustained effectiveness**

05 **INCREASED SODIUM UPTAKE**

Ability to **manage sodium levels effectively**

06 **NANO COMPOSITE STRUCTURE**

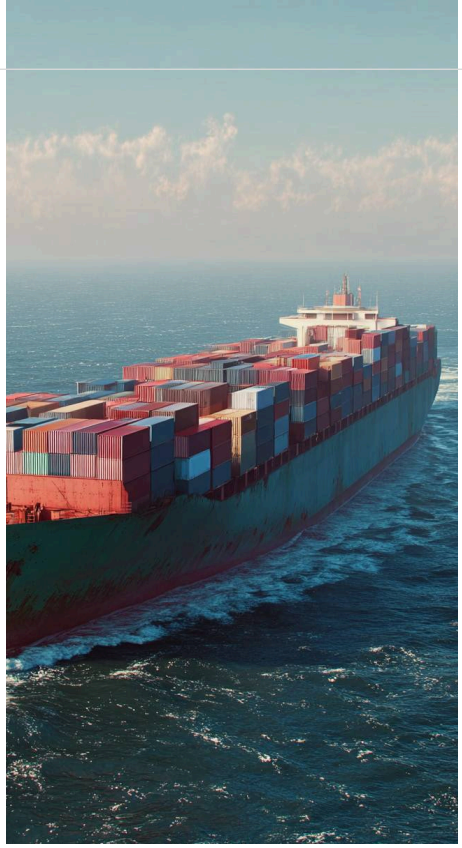
Advanced technology for **optimal performance**

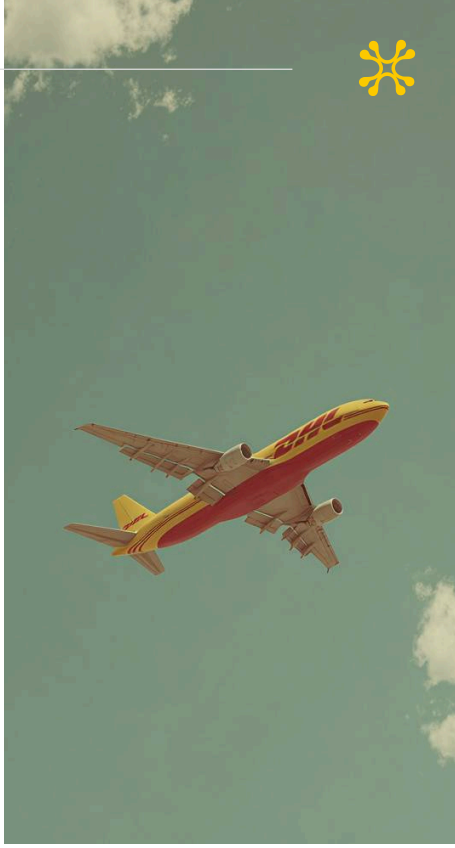
Global Shipment

International Connections

ANT Systems™ delivers its technologies globally, with active shipments to countries including Peru, Brazil, Türkiye, Iraq, the United Arab Emirates, Egypt, and more.

Our logistics network is built to support diverse agricultural and environmental needs, from desert restoration to large-scale farming, ensuring timely and secure delivery. With production and fulfillment centers strategically located, we efficiently serve partners across **Latin America, the Middle East, Europe, and beyond.** Each shipment is handled with care and complies with international standards to ensure quality, reliability, and impact at every destination.









Client Testimonials

“ **Since using Nanotern**-treated produce, I’ve noticed a **significant difference in taste** and freshness. It’s reassuring to know that my fruits and vegetables are grown sustainably.”

CONSUMER | TÜRKIYE Zeynep M.

“ **Nanotern** has transformed how we **manage water on our farm.** We’ve seen higher crop yields and reduced irrigation costs, making our operations more efficient and environmentally friendly.”

FARMER | PERU Milagros D.

“ As a company committed to sustainability, **integrating Nanotern into our operations** has been a game-changer. It aligns perfectly with our goal of reducing environmental impact while maintaining high-quality crop production.”

COMPANY | UAE Zainab S.

Frequently Asked Questions (FAQs)



“ What is Nanotern and how does it work?”

A: **Nanotern™** is a smart subsoil water reservoir designed to enhance water retention and availability in the root zone. It uses advanced nanotechnology to store water and gradually release it to plants as needed.

“ What makes Nanotern different from traditional soil additives or hydrogels?”

A: Unlike conventional additives, **Nanotern** integrates with the soil structure and operates passively over extended periods.

“ In what types of environments or climates is Nanotern most effective?”

A: **Nanotern** is ideal for arid, semi-arid, and drought-prone regions but is also beneficial in standard agricultural settings where water efficiency and soil improvement are priorities.

“ Is Nanotern safe for crops, soil, and the surrounding ecosystem?”

A: Yes. **Nanotern™** is engineered to be environmentally friendly, biodegradable, and non-toxic. It supports healthy root development and promotes microbial balance in the soil.

“ How long does Nanotern remain effective after application?”

A: Depending on soil conditions and climate, **Nanotern** can remain active in the soil for several seasons, providing long-term benefits without the need for frequent reapplication.

“ Can Nanotern be used alongside fertilizers and other soil treatments?”

A: Absolutely. **Nanotern** is compatible with most standard agricultural inputs and can even improve the efficiency of fertilizer uptake by keeping nutrients accessible in the root zone.

“ Is Nanotern biodegradable?”

A: Yes, **Nanotern**™ is fully biodegradable. It is designed to break down naturally over time without leaving harmful residues in the soil, ensuring long-term environmental safety and sustainability.

“ Is Nanotern non-toxic?”

A: Absolutely. **Nanotern** is non-toxic and safe for plants, soil, microorganisms, and humans. It contains no harmful chemicals, making it suitable for both conventional and organic agriculture.

“ How many times do we have to renew Nanotern?”

A: **Nanotern** typically remains active in the soil for up to two growing seasons, depending on climate and soil conditions. Reapplication may be done every 18–24 months for optimal results.

“ Do we need specific equipment to apply Nanotern?”

A: No special equipment is required. **Nanotern**™ can be applied manually or mechanically, either mixed into the soil or placed directly around plant root zones. It integrates easily into existing farming or landscaping workflows.

“ How does Nanotern work in soil-less conditions?”

A: In soil-less systems like hydroponics or urban landscaping setups, **Nanotern** helps retain moisture and nutrients around the root zone. Its absorbent and slow-release properties provide added stability and efficiency even without traditional soil.

“ Can Nanotern be used in all soil types and climates?”

A: Yes, **Nanotern** is formulated to be effective across all soil types—sandy, loamy, clay—and in a wide range of climates, from arid to temperate. Its adaptability makes it a valuable tool for water retention and plant health worldwide.

www.nanotern.com

nanotern

SMART SUBSOIL WATER RESERVOIR

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ANT Systems™
AGRICULTURAL NANO-TECHNOLOGY

Nanotern™ is a patented product of ANT Systems™