



**GROW
MACHINES**

2026

ROOIKAT NFT RAISED BED SYSTEM

**A COMMERCIAL HYDROPONIC
PRODUCTION SYSTEM FOR LETTUCE
AND OTHER COMPACT SINGLE-
HARVEST CROPS**

The Grow Machines Rooikat NFT Raised Bed System is designed for commercial leafy crop production. The large, continuous production bed helps to utilise available tunnel or net house space efficiently for production.





WHAT IS THE ROOIKAT NFT RAISED BED SYSTEM?

01



The Rooikat is an elevated, recirculating hydroponic production system in which plants grow without soil in NFT grow channels. NFT stands for Nutrient Film Technique. A thin layer of water containing dissolved plant nutrients flows through the grow channels and along the plant roots. The water then returns to the Life Support System (LSS) and is recirculated through the system.

WHAT MAKES THE ROOIKAT DIFFERENT?

The grow channels are positioned next to one another to form a large, continuous production bed without walkways between smaller production modules.

This means:

- more of the floor area can be used for plants;
- the system is suitable for commercial production; and
- large groups of plants can be planted and harvested together.

The Rooikat is therefore particularly suitable where production area is more important than daily access to every individual plant.





HOW DOES THE SYSTEM WORK?

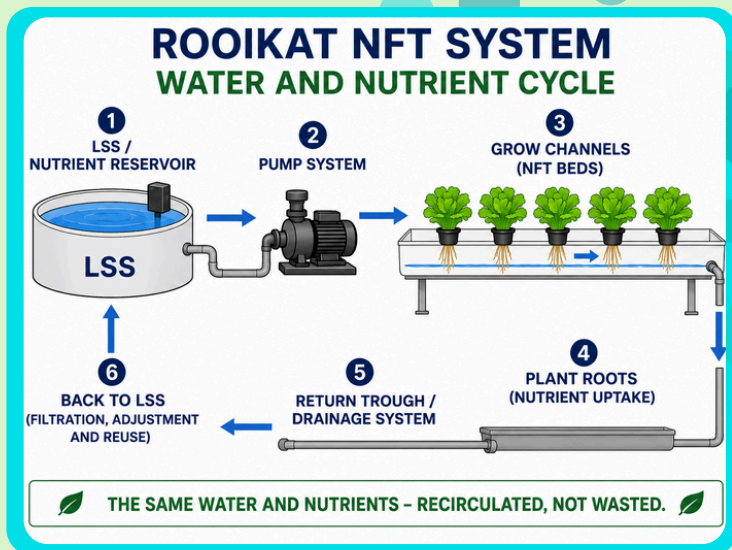
02

The nutrient solution is prepared in the LSS reservoir, where water and hydroponic plant nutrients are mixed and regularly monitored to maintain the appropriate balance for the crop.”

From there, the solution is pumped by the LSS to the Rooikat system, where it is distributed to the grow channels.

Each 5 m grow channel receives its own controlled water supply, allowing a thin film of nutrient solution to flow along the plant roots and supply the plants with water and nutrients.

After moving through the grow channels, the water flows into a return gutter and returns by gravity to the LSS reservoir. This closed-loop system means that the water is continually reused and the process is repeated to maintain a stable and efficient root environment for the plants.





THE MAIN BENEFITS

03

MORE PRODUCTION AREA

Because there are no internal walkways within the production bed, a larger portion of the tunnel or net-house floor can be used for plant production.

ROBUST COMMERCIAL CONSTRUCTION

The Rooikat uses a strong aluminium structure designed for larger commercial production beds.

SUITABLE FOR BATCH PRODUCTION

The Rooikat works best when an entire bed is managed as one production group:

Plant

Manage

Harvest

Clean

Replant

This simplifies production planning and allows the system to be thoroughly cleaned between crops.

INDEPENDENT PRODUCTION BEDS

Multiple Rooikat systems can be planted at different times to create a regular production and harvesting programme.

The aim is not simply to fit in as many plants as possible, but to use the available area as efficiently as possible for production.





04

WHICH CROPS CAN BE PRODUCED?

The Rooikat is particularly suitable for compact crops that require relatively little individual handling and can be harvested as a complete production group.

GOOD ROOIKAT CROPS

- Curly leaf lettuce and other loose-leaf lettuces
- Iceberg lettuce
- Other suitable lettuce types
- Certain compact leafy vegetables
- Certain herbs
- Baby cabbage and smaller cabbage crops
- Other suitable compact crops

REPEAT-HARVEST CROPS SUCH AS SWISS CHARD AND HERBS?

Swiss chard and similar crops can grow very well in the Rooikat.

The main challenge is access. When a 5 m-wide bed is full of mature plants, those in the centre become more difficult to reach. Where regular individual harvesting or pruning is required, the Modular NFT Raised Bed System may be a better option.

CHOOSE THE RIGHT SYSTEM

- **Rooikat: Single-harvest compact crops and batch production**
- **Modular NFT Raised Bed System: Regular access and greater flexibility**
- **Hallelujah System: Trellised and fruiting crops such as tomatoes and cucumbers**

Tell us what you would like to produce. We will help you choose the most suitable system.



HARVESTING METHOD AND PRODUCTION CYCLE

05



ONE ROOIKAT = ONE PRODUCTION BATCH

The ideal Rooikat production method is to plant the entire system at approximately the same time and later harvest it as one group. After harvesting, the system can be completely:

- emptied;
- cleaned;
- inspected; and
- prepared for the next crop.

This supports good hygiene and simplifies production management.

REGULAR HARVESTS

Where a client wants to supply produce weekly, several independent Rooikat systems can be planted at different times.

This allows one bed to be harvested while the others continue growing.

Actual crop growth time depends on factors including:

Crop

Cultivar

Light

Plant spacing

Water

Management

Nutrition

Temperature

Season

Factors such as nutrient-solution flow, EC and pH levels, oxygen availability, water temperature and timely harvesting also play an important role in overall production results.





06

A SYSTEM THAT CAN MATCH YOUR PRODUCTION SCALE

The standard Rooikat is approximately 5 m wide, with an alternative width of approximately 3.5 m for standard 10 m × 30 m tunnels.

STANDARD LENGTHS AND CAPACITY

Based on the standard 300 × 250 mm layout.

Length	Plant positions
28 m	±1 860
30 m	±2 000
36 m	±2 400
42 m	±2 800
48 m	±3 200
54 m	±3 600
60 m	±4 000

EXPANSION

Additional production capacity is created by adding more independent Rooikat systems.

Start with the capacity that you can manage and sell.

Expand when your market and production results justify it.

THE 5 m × 60 m ROOIKAT

A 60 m Rooikat provides approximately:

- 200 grow channels
- 1 000 linear metres of NFT grow channel
- 4 000 plant positions
- approximately 300 m² gross production area

A denser 250 × 250 mm layout can provide up to approximately 4 800 plant positions where the crop and market justify it.



PLANT PRODUCTION, CONTROL AND INSTALLATION

07

Good hydroponic production depends on more than the system alone. Important factors include:

Water quality

pH

EC

Water temperature

Plant nutrition

Flow

Light

Plant spacing

Plant health

Ventilation



CONTROL OPTIONS AND COMPONENTS

LIFE SUPPORT SYSTEM

The Rooikat is connected to a separate **Life Support System (LSS)**.

MANUAL LSS

A simpler, robust option with less electronic complexity and direct operator control.

SMART LSS

A more advanced option that, depending on the project, can support functions such as monitoring, alarms, dosing and other automated controls.

COOLING

A cooling tower can help manage the temperature of the nutrient solution and is particularly recommended in hot production areas.

INSTALLATION

The Rooikat system and connected LSS are supplied as a pre-prepared unit to simplify installation. Installation can be carried out by the client or an appointed team, provided the site is level and correctly prepared and the required water and electrical connections are in place. Tunnels or similar structures remain the client's responsibility unless otherwise agreed. Net houses can be supplied and installed on request at an additional cost.

Once the required connection points are ready, the system is connected and tested to confirm correct operation and that there are no leaks. We also provide layout and planning support to help determine suitable system placement. Automation is used only where it adds practical value.



SITE, WATER AND RELIABLE ELECTRICITY

08

SITE

The production area must be:

- firm and stable;
- prepared as level as practically possible; and
- well drained.

The Rooikat's adjustable frame is used to set the final NFT slope accurately.

ACCESS

For a standard 5 m Rooikat, we prefer approximately 1 m of walkway space along each long side.

This gives an overall planning width of approximately 7 m per bed.

WATER

Standard site guideline:

20 mm water connection at approximately 1–3 bar

ELECTRICITY

Standard supply: 230 V AC, 50 Hz

Reliable power is essential because the pump circulates nutrient solution through the root system. For backup power or more self-sufficient operation, we can also install solutions such as:

- battery and inverter systems for backup power;
- solar systems with panels, batteries and an inverter; or
- hybrid systems combining grid power and solar power.

These solutions can be designed and installed by Grow Machines as part of the project.

NET HOUSE AND TUNNEL STRUCTURES

We can also install a net house or other protected structure for the project at an additional cost. If the client chooses to erect their own tunnel or similar structure, installation remains their responsibility. We can, however, provide advice and guidance on suitable materials, specifications and layout to ensure that the structure is appropriate for the Rooikat system.



INSTALLATION, TRAINING AND SUPPORT

Grow Machines manufactures and prepares the Rooikat components according to the project.

During installation and commissioning, the following are among the items installed, connected and tested:

Frame and layout

LSS

Water supply

Return flow

Grow-channel slope

Pump

Complete water circuit

09

TRAINING

The operator receives initial training to understand the basic operation of the system and the most important production controls.

A formal course covering the fundamentals of hydroponics is also available to Grow Machines clients.

SIX MONTHS OF MENTORSHIP

Support does not end when the Rooikat starts operating.

Grow Machines provides six months of mentorship after system start-up to help the client:

- understand the system better;
- manage the most important controls correctly; and
- build on real production results.

We do not want you simply to use the system — we want you to understand how to manage build on real production results





LET US DETERMINE WHAT YOUR PROJECT NEEDS

10

TELL US WHAT YOU WOULD LIKE TO PRODUCE

The Rooikat is not a standard solution that suits every project. To determine the most suitable Rooikat layout for your project, we need the following basic information:

- your project location and nearest town;
- the crops and cultivars you would like to produce;
- your market and production objective;
- how much you would like to produce and how often;
- the available site and dimensions;
- details of any existing tunnel or net house;
- your water source and, if available, a water analysis;
- available electricity;
- site slope and drainage;
- who will manage the system daily;
- your intended start date; and
- your preferred starting scale and future expansion plans.

Tell us what you would like to produce. We will help you plan the Rooikat project around your crop, market and available space.

HOW THE PROCESS WORKS





CONTACT DETAILS



www.growmachines.co.za



Darling Farm, Standerton,
Mpumalanga, South Africa

WYNAND BEZUIDENHOUT:



info@growmachines.co.za



+27(0) 82 338 2051

RIKA BEZUIDENHOUT:



rika@growmachines.co.za



+27(0) 76 895 4879



SCAN HERE



SCAN HERE

**TELL US WHAT YOU WOULD LIKE
TO PRODUCE.**

*We will help you determine the
most suitable Rooikat NFT Raised
Bed System for your crop, market,
site and desired production scale.*



**GROW
MACHINES**