iGro© Kit user manual

iGro© Kit

Double your yield

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www.agrosheriff.net

AgroSheriff's AgriTech

Think AgroTech – Think AgroSheriff

1. Introduction

Product Overview

Welcome to the iGro© Kit, your complete solution for automated irrigation and fertilization. Designed to ensure that your crops receive optimal water and nutrients, the iGro© Kit simplifies the complex process of crop management, making it accessible to everyone from hobbyists to professional farmers.

Package Contents

Upon opening your iGro© Kit, you will find the following components:

- KATIF self-cleaning drippers (uniform, 2.3 L/hr)
- Dosing Pump (Fertigation unit)
- Automation Controller (Bluetooth or digital)
- Screen and Disc Filters
- Manual Valves
- Puncher and Inserter Tools
- Fittings (Triangles, Elbows, Caps, Tees, Nipples, Manifolds)
- 20mm and 25mm Polyethylene Pipes - Local purchase (excluded)
- Water pump / water booster – Local purchase (excluded)

KATIF self-cleaning drippers

Dosing Pump

Automation Controller

Screen and Disc Filters

Puncher and Inserter Tools

Fittings and Manual Valves

Intended Use

The iGro© Kit is designed for automated irrigation and fertigation of crops. It is ideal for gardens, small farms, and greenhouse operations. The system ensures consistent water delivery and precise nutrient dosing, optimizing crop health and yield.

2. Safety Information

General Warnings

- Read all instructions before assembling or using the iGro© Kit.
- Always wear protective gloves when handling chemicals or sharp tools. Fertilizer or puncher tool.
- Ensure the water source is clean and free of contaminants to prevent damage to the system.

Electrical Safety

Battery Handling: The Automation Controller operates on a 3V battery. Do not attempt to modify the power supply or use a different battery type. Ensure that the battery is installed correctly, observing the correct polarity.

Avoid Water Exposure: The Automation Controller and other electronic components are waterproof up to IP66.

Handling and Maintenance

Component Inspection: Regularly inspect all components of the iGro© Kit for signs of wear, damage, or leaks. Early detection of issues will prevent more significant problems down the line.

Proper Storage: It is recommended to install a small roof above the system, to prolong the life of the components. When not in use, store the iGro© Kit components in a dry, cool place. This will extend the lifespan of the system and prevent damage due to environmental factors.

Small roof above to protect from the sun

2. Components Overview

Drip Irrigation Emitters

The KATIF drippers deliver 2.3 liters per hour of water, maintaining uniform distribution across the system. These drippers are self-cleaning, reducing the risk of clogs and ensuring long-term reliability.

Key Features:
Uniform water distribution across the system.
Self-cleaning mechanism reduces maintenance needs.
Designed for durability and long-term use.

Dosing Pump (Fertigation Unit)

This pump allows you to mix fertilizer with water, delivering it directly to your crops. It operates without electricity and can be adjusted to deliver between 0.2% to 2% fertilizer concentration.

Key Features:
Adjustable fertilizer concentration from 0.2% to 2%.
Non-electric operation makes it suitable for off-grid use.
Compatible with a variety of liquid fertilizers.

Automation Controller

This Bluetooth-enabled device allows you to set up to six irrigation cycles per day. It is powered by a 3V battery and can be controlled remotely via the iiri app, making irrigation management easy and efficient.

Key Features:
Bluetooth-enabled for easy remote control.
Supports up to six customizable irrigation cycles per day.
Simple setup and operation through the iiri app.
Completely waterproof.

Download on the App Store

Google play

2. Components Overview

Filters

The iGro© Kit includes a screen filter to be installed before the fertigation unit and a disc filter to be installed after. These filters prevent debris from clogging the system, ensuring smooth operation.

Key Features:
Screen filter captures large debris, protecting the dosing pump.
Disc filter removes fine particles, ensuring clean water reaches your crops.
Easy to clean and maintain, extending the life of the system.

Puncher and Inserter Tools:

The puncher and inserter tools provided in the iGro© Kit are designed
to simplify the installation of drippers and other components.

Key Features:
Specialized tools for precise installation.
Durable materials ensure a secure and leak-free setup.

Valves and Fittings

The kit includes manual valves that allow you to control water flow and pressure at various points in the system. These valves are essential for isolating sections of the system for maintenance or adjustments.

The kit also includes various fittings (triangles, elbows, caps, manifolds, nipples) to connect and secure the irrigation lines.

Key Features:
A wide range of fittings to accommodate different system layouts.
Durable construction for long-lasting use.
Precise control over water flow and pressure.
Essential for maintenance and troubleshooting.

2. Assembly Instructions - Pipe Preparation

Cutting the pipes:

100 sqm kit - Begin by cutting 100 meters of 20mm polyethylene pipe into ten 10-meter sections. These will serve as your main drip lines. Additionally, cut 12 meters of 25mm polyethylene pipe into twelve 1-meter sections, which will be used for connecting key components of the system.

200 sqm kit – 200 meters of 20mm pipe into 10-meter sections each.
24 meter of 25mm pipe into 24 - 1meter section each.
400 sqm kit – 400 meters of 20mm pipe into 10-meter sections each.
62 meter of 25mm pipe into 62 - 1meter section each.
800 sqm kit – 800 meters of 20mm pipe into 10-meter sections each.
125 meter of 25mm pipe into 125 - 1meter section each.
1200 sqm kit – 1200 meters of 20mm pipe into 10-meter sections each.
250 meter of 25mm pipe into 250 -1meter section each.

Golden tip:
To make assembly easier, lay the pipes out in the sun for 24 hours. The heat will soften the polyethylene, making it more flexible and easier to work with when connecting fittings.

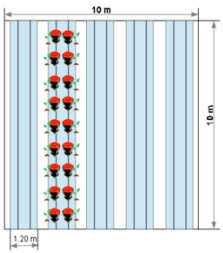
Pre-Assembly Checklist

Before you begin assembling the iGro© Kit, gather the following tools and materials:

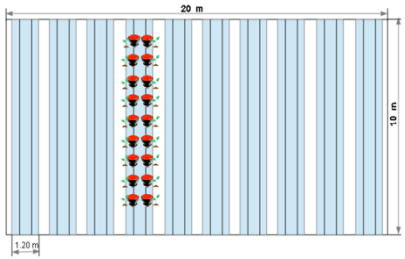
1. 20mm and 25mm Polyethylene Pipes. Depends on the purchased kit:

100 sqm: PE 25mm - **12meter** + PE 20mm - **100meter**

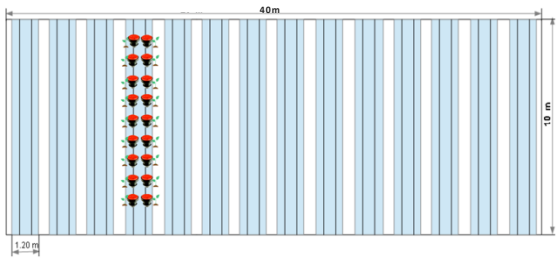
2. Puncher and Inserter Tools (included)
3. Fittings (Triangles, Elbows, Caps) (included)
4. Boiled Water (for fitting assembly)
5. Measuring Tape
6. Marker
7. Scissors or Pipe Cutter



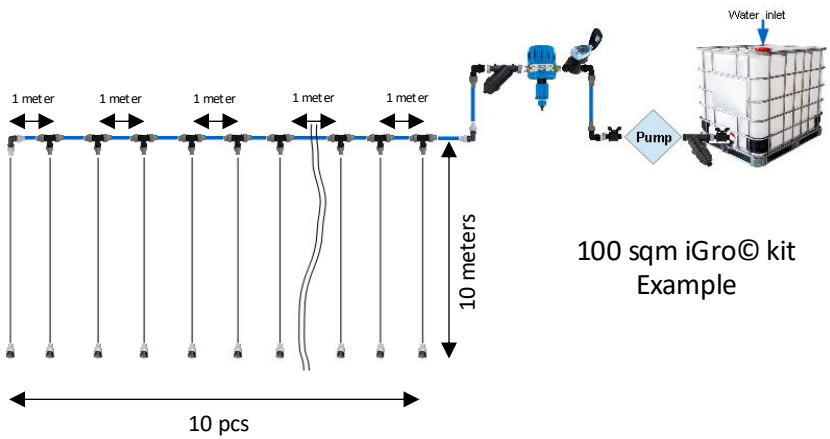
100 sqm PE pipe scheme



200 sqm PE pipe scheme



400 sqm PE pipe scheme



100 sqm iGro© kit Example

20mm
10 meter – 10 pieces

25mm
1 meter – 12 pieces

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2. Assembly Instructions - System Assembly

Step 1 - Water Inlet Assembly:
Attach the long-handle valve to the water source. Connect the screen filter with the arrow pointing towards the outlet. If using a water pump, install it next, followed by the short-handle valve.

Install ball valve 1 and filter 2 at a distance of about 20 cm from the bottom of the tank.

Connect the booster pump/ water pump and install ball valve 3 after the pump.

Use sealing tape when assembling threaded connections.

Do not use any tools to tighten threaded connections - hand strength is sufficient, otherwise the integrity of the parts may be compromised.

Golden tip:
Make sure to follow the arrows of flow on the equipment. Each disk have its own direction flow, printed on both sides of it. Screen ← Disk →

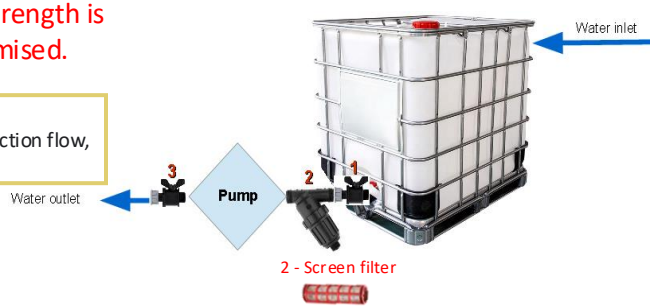
For installation without water booster/ Pump

Install the ball valve on the water tank.

Install the filter on the ball valve.

Install the second ball valve.

The second valve is redundant, however due the male/female fitting of the kit, it has to be installed, or a dedicated nipple converter can be used.



Step 2 - Automation and Fertigation Assembly:

Connect the Automation Controller to the fertigation dosing pump using the provided fittings. Make sure that the arrows on both components point towards the water outlet, ensuring proper flow direction.

Install the disc filter after the fertigation unit. This filter will remove finer particles, protecting the drippers from clogs and ensuring clean water reaches your crops.

Install controller 4, MixRite 5, filter 6 and adapter 7 as shown on the scheme, while it is necessary to observe the condition of installing the MixRite at a height of at least 30 cm from the surface of the tank with the mother solution of fertilizers.

100 sqm iGro© kit Example

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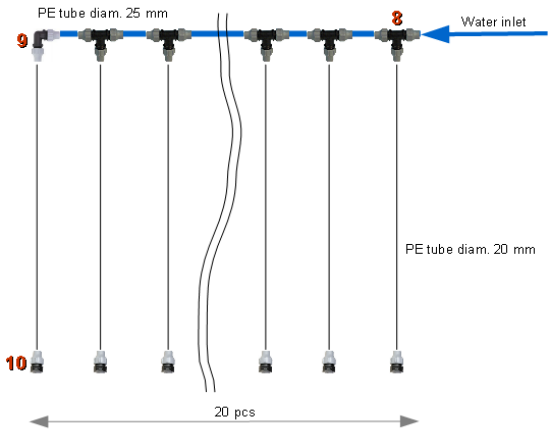
2. Assembly Instructions - Final Connection

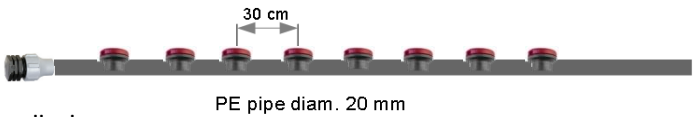
Connect the 25mm pipes to link the components, adjusting lengths as needed. Secure all fittings with boiled water to ensure a tight fit.

Lay a PE pipe with a diameter of 25 mm along the entire site, if the site has a slope - make sure that the pipe is on the higher side of the site.
Install the tees 8 and elbow 9.
Connect a PE pipe 20 mm in diameter and 10 m long (according to the length of plants beds) to each tee and elbow and install a plug 10 at the end of each pipe.



Step 1 **Step 2** **Step 3 – Cap** / **Tee** / **Elbow**

Drip Line Assembly



Marking and Punching:
Mark the 10-meter pipes where the drippers will be installed.
For a full line of water, install drippers at every 30cm.
Use the puncher tool to create holes at these marks, and immediately insert the drippers using the inserter tool.

It is important to **install each dripper immediately after piercing the hole is made,** to avoid loose fitting and water leakage while the system is running.

Installing Drippers:
Insert the drippers into the holes using the inserter tool. Ensure that each dripper is firmly seated in the pipe, facing up, with no gaps or leaks around the insertion point. All drippers in one line.

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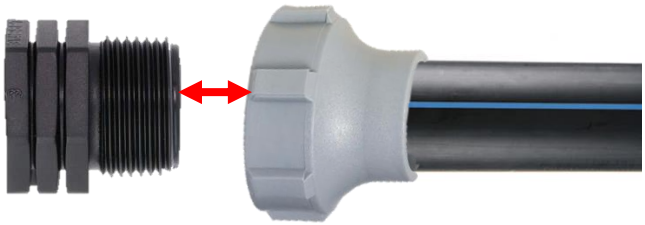
2. Assembly Instructions – System Check

After installing the drippers, connect the 20mm drip lines to the main 25mm pipes using the triangle tee fittings. The triangle fittings allow multiple lines to connect to a single water source, distributing water evenly across the system.

At the end of each drip line, use an elbow fitting to cap the line, preventing water from escaping.
Before closing the cap – and after assembly of all the system – run water in the system, to clean it from debris.
CLOSE THE CAP AFTER



Run water in fully assembled system before closing the caps

Laying Out the System:

Arrange the drip lines in your field according to your specific crop layout. The arrangement should ensure that each plant receives adequate water, with drippers positioned close to the roots.
Once all lines are in place, perform a final inspection to ensure that all connections are secure, and that the system is laid out as planned.

5. Operating and Usage

FertiCalc©

Developed by AgroSheriff's AgriTech engineers and developers is a unique initial fertilizer calculator for your crops. Using water soluble regular NPK solution which available locally.

Simply scan the QR code:
And follow the steps

Use the unique password written on your iGro© kit.

Getting Started

Before operating the iGro© Kit, it is essential to prepare your fertilizer solution and set up the irrigation schedule. These steps ensure that your crops receive the right amount of water and nutrients at the right times.

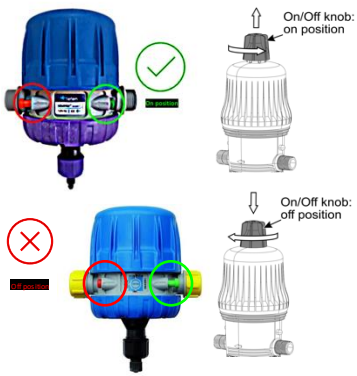
1.Preparing the Fertilizer Solution:

Use the AgroSheriff FertiCalc© to calculate the correct fertilizer formula based on your crop type and soil conditions. This software considers various factors, such as current NPK available and nutrient requirements, to provide an optimal fertilizer mix.

Mix the calculated amount of fertilizer with water according to the provided instructions. For best results, set the dosing pump to deliver a 2% fertilizer concentration, although this can be adjusted based on specific crop needs.

Make sure to leave 30cm between the NPK 10 liter bucket and dosing pump

Adjust – Increase or increase percents of fertilizer per 1 liter of water: 0.2% - 2%. By removing the top Latch and screw-unscrew the handle.



Make sure the green button on the Dosing pump is pushed inside while the red button is outside.

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5. Operating and Usage

Setting Irrigation Schedules:
To set an irrigation schedule, open the iiri app and navigate to the scheduling section. Here, you can add new cycles by specifying the start time, duration, and frequency.

It is recommended to water your crops early in the morning or late in the evening to reduce evaporation and ensure that water reaches the roots effectively.

For open field crops divide your normal irrigation time by 2 and adjust the iiri controller twice a day for the added desired time.
For example: Normal irrigation – 14 minutes
iiri irrigation – 5:00am 7 minutes + 5pm 7 minutes.

Golden Tip: Monitor your crops regularly and adjust the irrigation schedule as needed. Factors such as weather conditions, soil moisture, and crop growth stages may require changes to the schedule.

Manual Operation:
The iiri app also provides a manual control option. This feature allows you to open or close the irrigation system with a single tap, bypassing the pre-set schedules.

Manual operation is useful for spot watering or testing the system after maintenance. To activate manual mode, simply press the "manual" button in the app, and the system will start or stop water flow immediately.

User Interface
The iiri app features an intuitive interface that allows for easy scheduling and manual operation. The main screen displays the current status of the irrigation system and provides quick access to settings and controls.

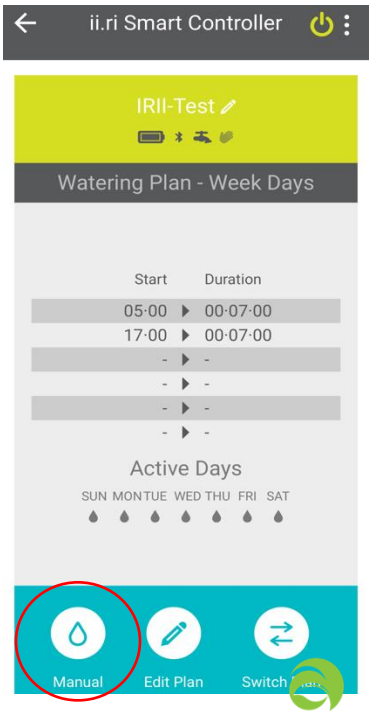
Iiri app

Download the iiri by scanning the QR code:

Download on the App Store | Google play

Pair the app with the Automation Controller via Bluetooth. Once paired, you can access all control features directly from your phone.

The app allows you to program up to six irrigation cycles per day. These cycles can be customized to match the watering needs of your crops, with adjustable start times and durations.



6. Maintenance and Troubleshooting

Regular Maintenance

Maintaining the iGro© Kit is essential to ensure its longevity and reliable performance. Follow the recommended maintenance schedule to keep the system in top condition.

Recommended Spare Parts:

Backup 3V battery for the Automation Controller

Filter Cleaning: Clean both the screen and disc filters every six months using a toothbrush under slight water pressure.

Dripper Inspection: Regularly inspect the drippers for clogs or reduced flow. If a dripper appears to be underperforming, perform system flushing.

System Flushing: To prevent residue buildup and maintain water quality, flush the system weekly without fertilizer. This process involves running clean water through the system for several minutes to clear out any remaining fertilizer or debris. Simply press the red button on the dosing pump to switch it off passing water. See page 10 diagram.

It is recommended to give acid in small quantity to both your crops and for flushing the system - pH balance. Use the FertiCalc© software to learn how to add acid to your crops – Page 10 QR code.

Troubleshooting Guide

Low Water Pressure: Check for blockages in the filters or pipes. Ensure all fittings are securely attached and that there are no leaks.
If the problem persists, inspect the water source for issues such as low pressure or contamination.

Solenoid Valve Not Working: If the solenoid valve isn't operating correctly, open the Automation Controller and check the spring-loaded metal part inside. This part should be in OUT position for proper operation. If the part is stuck, gently move it back into place.

Drippers Not Releasing Water: Check each dripper for clogs. Perform system flushing. If the problem persists, check the water pressure in the system and adjust as needed.

7. Technical Specification

Product Specifications

Drip Irrigation Emitters: 2.3 L/hr flow rate, pressure compensated, self-cleaning, uniform distribution.

Dosing Pump: Non-electric, adjustable concentration from 0.2% to 2%.

Automation Controller: Bluetooth-enabled, 3V battery-powered, up to 6 cycles per day.

Filters: Screen and Disc Filters, easy to clean and maintain.

Operating Pressure: Minimum 2.5 BAR for optimal performance. Maximum 6 BAR.

Pipe Specifications: 20mm and 25mm Polyethylene Pipes, UV-resistant, durable. Thickness 2-3 mm.

Temperature Range: Suitable for operation in temperatures between 0°C and 40°C.

Certifications

ISO 9001: Quality management system certification.
CE Marking: Conforms to European safety, health, and environmental protection standards.
RoHS Compliance: Restriction of hazardous substances in electrical and electronic equipment.
Watermark Certification: Certified for use in Australia, ensuring compliance with plumbing and water supply standards.

Environmental Impact
The iGro© Kit is designed with sustainability in mind:

Water Efficiency: The system reduces water waste by delivering precise amounts of water directly to the roots, minimizing evaporation and runoff.

Energy Efficiency: The non-electric dosing pump and battery-powered controller consume minimal energy, making the system environmentally friendly.

Recyclable Materials: Many components of the iGro© Kit are made from recyclable materials, contributing to a reduced environmental footprint.

8. Warranty, Support and FAQ

Customer Support
Our dedicated customer support team is here to assist you with any questions or issues you may encounter. Support is available via phone, email, and chat.

Support Hours:
Monday - Friday: 8:00 AM - 6:00 PM

Contact Information:
- **Phone:** +16047354176
- **Email:** info@agrosheriff.net
- **Live Chat:** Available on our website via WhatsApp

Warranty Information

The iGro© Kit is backed by a 2-year limited warranty, covering manufacturing defects and component failures under normal usage conditions. The warranty does not cover damage caused by improper installation, misuse, or unauthorized modifications.

Warranty Coverage:

Drip Irrigation Emitters: 2-year warranty
Dosing Pump: 1-year warranty
Automation Controller: 1-year warranty
Filters and Manual Valves: 2-year warranty
Fittings: 5-year warranty

FAQ

Q: How often should I clean the filters in the iGro© Kit?
A: It is recommended to clean the filters every six months, or more frequently if you notice a decrease in water flow or pressure.

Q: Can I use the iGro© Kit in a greenhouse setting?
A: Yes, the iGro© Kit is suitable for both outdoor and greenhouse environments. The system's components are designed to withstand a range of environmental conditions.

Q: What should I do if my crops appear overwatered?
A: If your crops are showing signs of overwatering, reduce the duration and/or frequency of your irrigation cycles in the iiri app. Monitor the soil moisture and adjust the schedule accordingly.

Q: Can I expand the iGro© Kit to cover a larger area?
A: Yes, the iGro© Kit is modular and can be expanded by adding additional drip lines and components. Ensure that your water source and system pressure are adequate to support the expanded setup.

Q: How do I know if the battery in the Automation Controller needs to be replaced?
A: The iiri app will notify you if the battery level in the Automation Controller is low. It is recommended to replace the battery promptly to avoid interruptions in operation. Typically, after 1 year.

5. Notes

Please make sure your water source has the appropriate debit.

- To ensure the uninterrupted operation of the system, it is necessary to install on the site a backup water storage tank 1 m^3 / 1000 litters (provided by the customer).
- Use a booster pump or water pump (provided by the customer) to maintain the correct pressure in the system.
- The pump must be equipped with a controller that turns on the pump when the pressure in the system drops and provide a pressure of 2-2.5 ATM/ Bar at a flow rate of 30 l/min.

Additional notes

- Upon ROI (Return Of Investment) and expansion, more drippers will be sent, additional solenoid valve, controller and fittings.
- The price for expansion is lower than purchasing a new kit.
- Designed for a perfect square farm kits.

For ununified farms, a project development has to be implemented.
The components of which are designed in accordance with the calculated technical characteristics individually for each irrigation site, depending on the site's configuration, it's dimensions, type of crops grown, planting scheme, type of water supply source water debit, etc. Contact us for more information.

Best Practices
To ensure the best results from your iGro© Kit, consider the following:

Monitor Crop Growth: Regularly check your crops for signs of overwatering or underwatering. Adjust the irrigation schedule as needed based on observed conditions.

Inspect the System: Perform regular inspections of the irrigation system to ensure all components are functioning correctly. Look for signs of wear, leaks, or blockages.

Use Quality Fertilizers: For optimal results, use high-quality, water-soluble fertilizers compatible with the dosing pump. Avoid using granular fertilizers, as they may not dissolve completely and could clog the system.

For YouTube video tutorial on the iGro© kit search: **iGro© kit | Complete Tutorial**
Or scan the QR code:

iGro© kit | Complete Tutorial

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If you need further assistance or have additional questions, please do not hesitate to contact us. We are here to help you get the most out of your iGro© Kit.

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Simplifying AgriTech