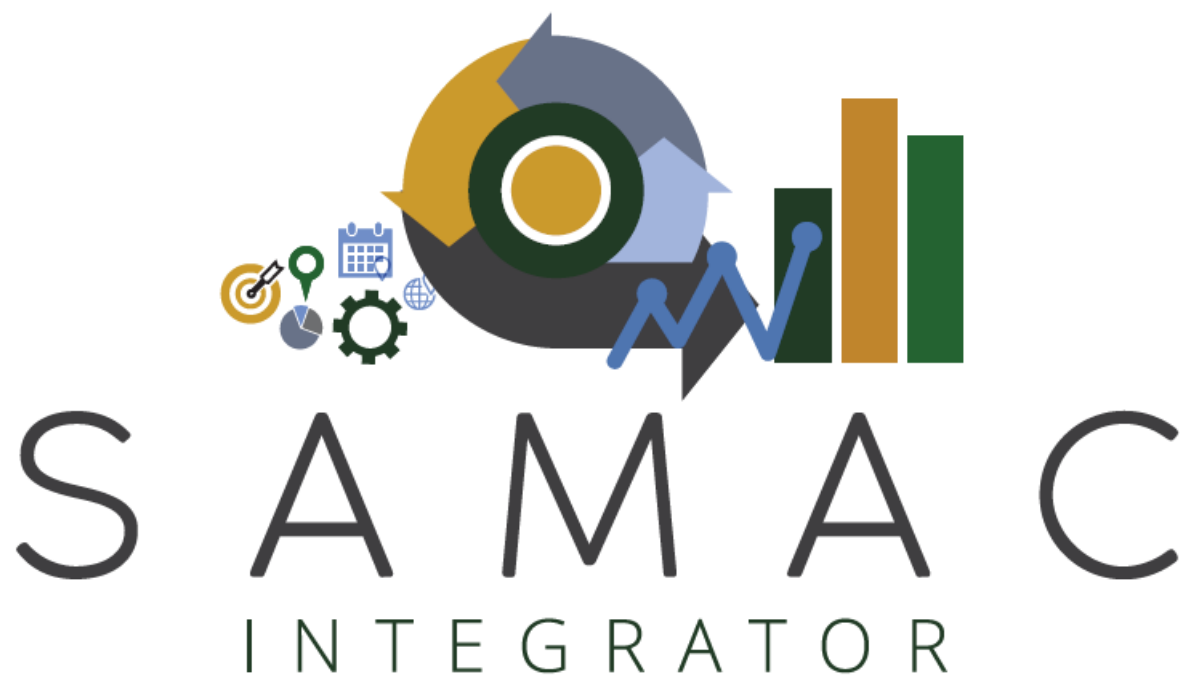




User Guide
Version 12

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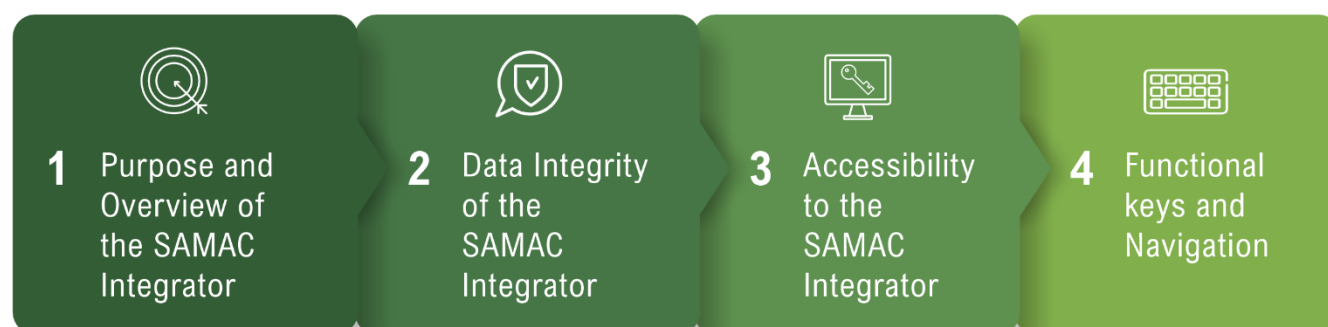
1 Purpose and Overview of the SAMAC Integrator

1.1 Purpose of the User Guide

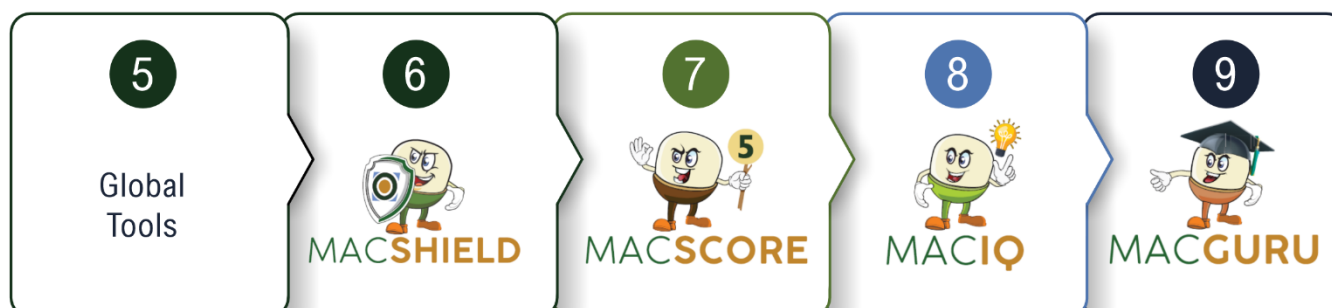
The purpose of this guide is to provide a practical, step-by-step approach to using the SAMAC Integrator.

It is structured to guide users through each functional area of the SAMAC Integrator platform, with a focus on how to use the system to capture data, interpret outputs, and apply insights to improve production, quality, and compliance on the farm.

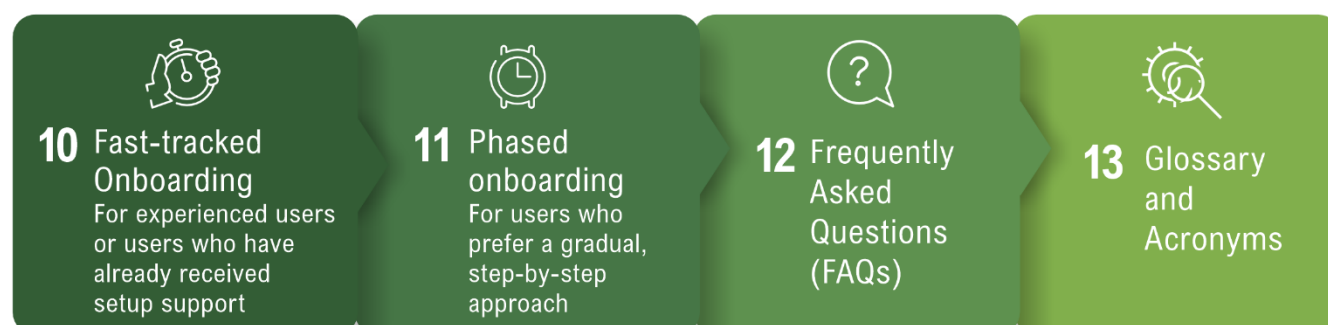
GETTING STARTED



THE PLATFORMS TOOLS



ONBOARDING & SUPPORT

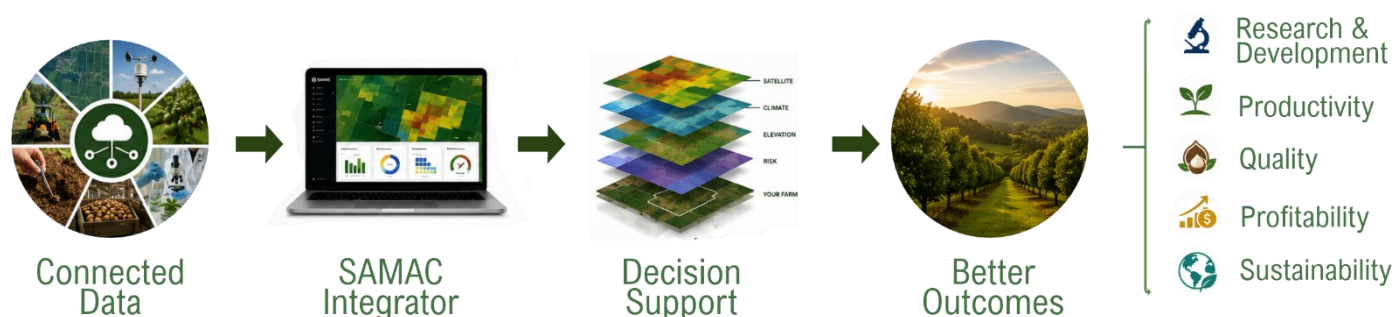


1.2 Setting the scene

The SAMAC Integrator is a comprehensive digital platform developed to support data-driven decision-making within the South African macadamia industry. The platform consolidates information from multiple sources into a single, integrated system.

The primary purpose of the SAMAC Integrator is to transform isolated datasets into meaningful insights that supports:

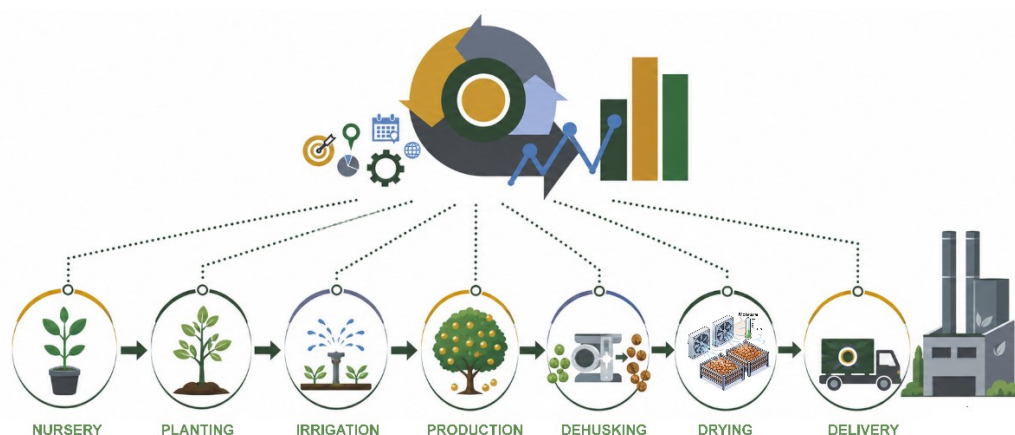
- research and development,
- on-farm productivity,
- in-shell and kernel quality,
- profitability, and
- long term sustainability.



Through data integration and linkages with spatial information, operational records, and industry benchmarks, users are equipped and can:

- identify practical and suitable solutions to relevant problems,
- evaluate performance,
- monitor trends,
- identify risks, and
- make informed management decisions to **improve yield and quality**.

The SAMAC Integrator is designed to support the entire production cycle, from nursery practices to orchard establishment and crop management up to harvest. It provides a wealth of knowledge and can facilitate post-harvest traceability, quality, compliance, and long-term sustainability.

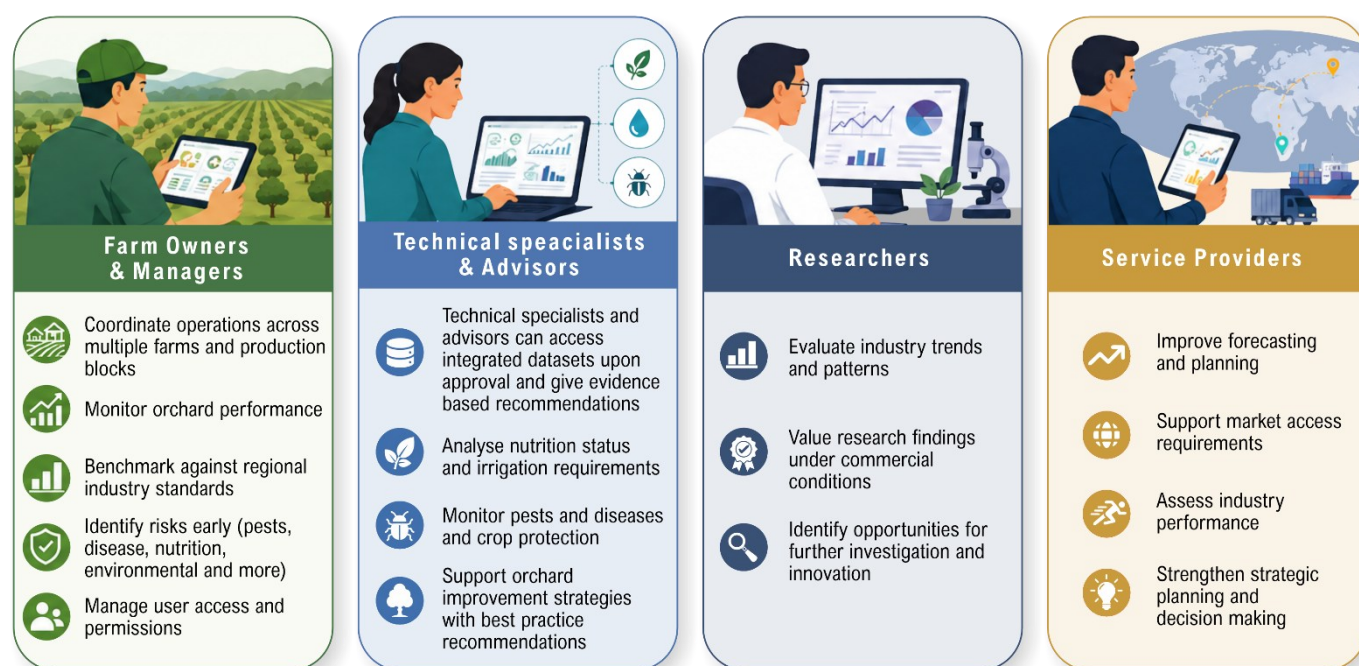


1.3 Users and Benefits

The SAMAC Integrator has been designed to be a user-friendly platform that provides several important benefits within **a single environment** by combining operational and external data with research findings, and industry insights.

The SAMAC Integrator provides **benefits to the macadamia industry** and its stakeholders:

- farm owners and managers,
- technical specialists and advisors,
- researcher, and
- service providers in the macadamia industry.

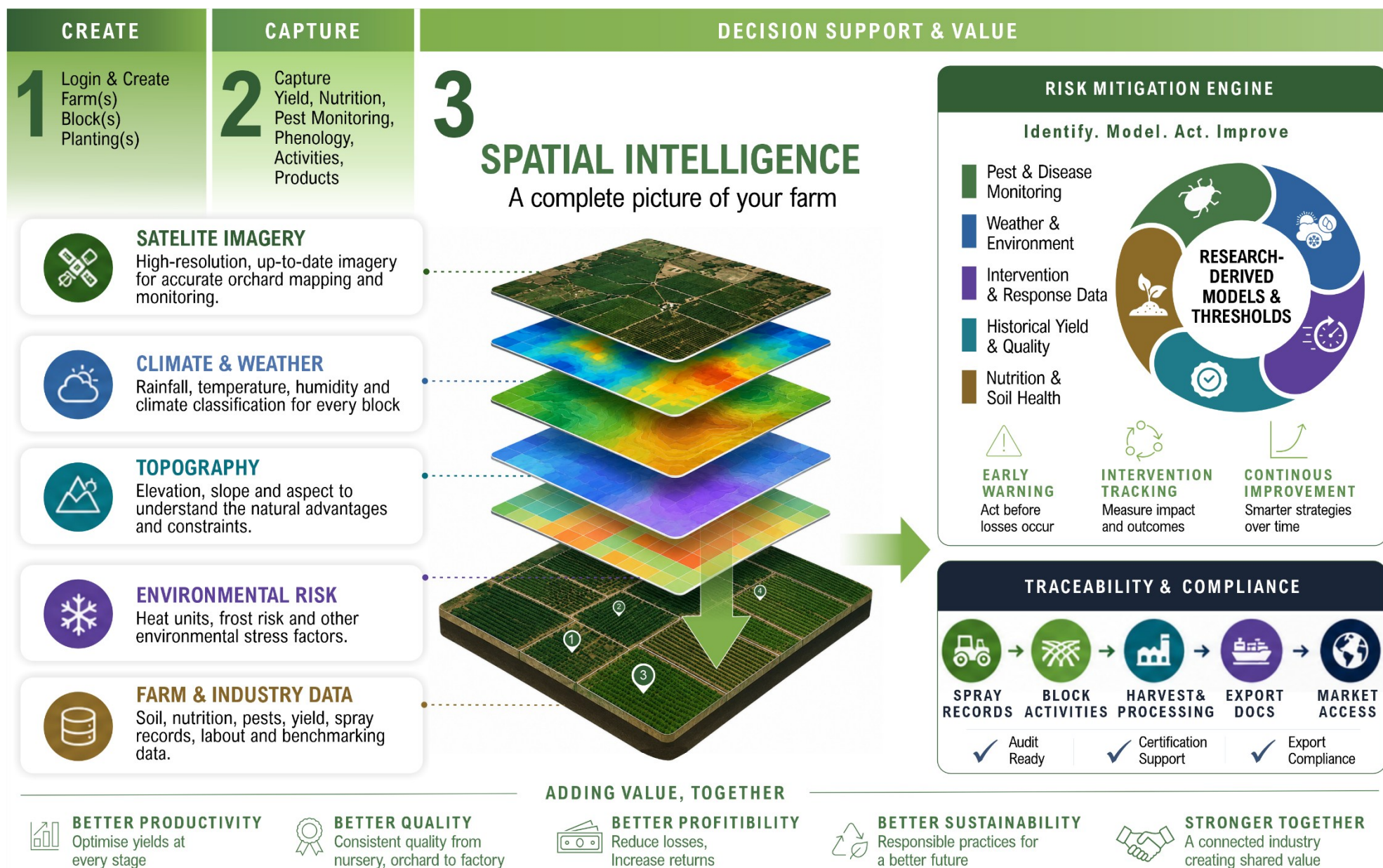


The platform improves decision-making by providing timely access to relevant information such as plant protection product lists, and analytical tools. Rather than relying on isolated records or subjective observations, users can make decisions based on validated data and measurable performance indicators. The system enhances traceability which supports audit readiness, certification requirements, and market access compliance.

Transition from reactive management practices to a proactive, data-driven approach focused on continued improvement and long-term sustainability.

From a nursery through production to delivery of the product perspective, the SAMAC Integrator supports complete traceability and record-keeping. All farm activities, including inputs, labour, and interventions, are recorded and linked to specific blocks and timeframes. This not only supports internal management and cost analysis but also ensures readiness for audits, certification processes, and market access requirements.

1.4 Overview of the SAMAC Integrator



From Farm Setup to Decision Support

The SAMAC Integrator transforms farm information into practical decision support through a simple three-step process:

1. Login and Create Farm(s), Block(s) and Plantings(s)
2. Capture your operational data
3. Make smarter decisions with industry insights

The journey begins by creating your farming structure within the platform. Users first establish their entity, farms, blocks and plantings, providing the foundation on which all subsequent analyses are built. Once this baseline information has been captured, operational data such as yield, nutrition, pest and disease observations, phenology, irrigation, farm activities and product applications are continuously recorded and integrated.

The platform then combines this farm information with environmental and industry datasets to create a comprehensive spatial picture of each orchard. Farm and block data are enriched with:

- satellite imagery,
- climate and weather information,
- topography,
- environmental risk indicators and
- industry benchmark data.

These integrated data layers provide immediate insight into orchard variability, production constraints and site suitability, enabling more informed management decisions.

Building on this foundation, the platform's Risk Mitigation Engine continuously evaluates the integrated data using research-derived models and scientifically validated thresholds.

This enables

- early identification of pest and disease risks,
- nutritional deficiencies,
- environmental stress and
- production constraints.

Intervention tracking and historical performance data provide continuous feedback, allowing management practices to be evaluated and refined over time.

Finally, the SAMAC Integrator supports complete traceability and compliance throughout the production cycle. Spray records, farm activities, production records and harvest information are securely linked from block level through to market, supporting certification requirements, export compliance and full product traceability.

Together, these capabilities enable growers based on connected, validated data to

- improve productivity,
- enhance quality,
- reduce risk,
- strengthen compliance and
- make better-informed management decisions.

2 Privacy, Security and Data Integrity

2.1 Building Reliable Industry Benchmarks

The SAMAC Integrator is a new platform and represents a significant step forward for the South African macadamia industry.

Although the platform has undergone extensive testing, some analytical features, particularly industry benchmarks, will continue to develop during the rollout period.

To provide meaningful benchmarking from day one, the platform initially uses a validated sample industry dataset compiled from participating growers. As more growers contribute production information, these sample benchmarks will be progressively supplemented and replaced by benchmarks calculated from live platform data.

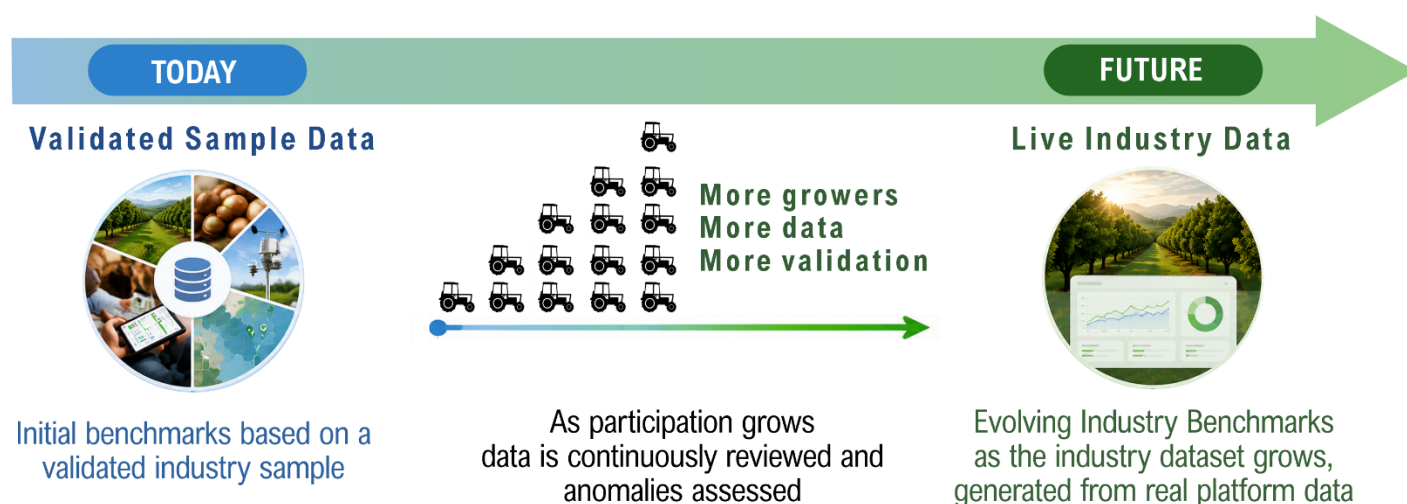
Industry benchmarks will only be published where sufficient comparable data exists for a specific:

- region;
- cultivar; and
- irrigation combination.

Before new benchmark data is released, it is reviewed for anomalies to help ensure that comparisons remain reliable, scientifically defensible and representative of industry performance.

Benchmarks will evolve: Users should expect benchmarks to change over time. As the volume and diversity of platform data increases, new patterns may emerge that differ from the initial sample dataset. Benchmarks may therefore change as new data is added, anomalies are identified and reviewed, and the underlying dataset becomes increasingly representative of different regions, cultivars and production conditions.

A changing benchmark does not necessarily indicate an error. It may reflect a larger, stronger and more representative industry dataset. Benchmark data will continue to be reviewed and validated as the platform grows.



Every grower who contributes data helps strengthen the accuracy and value of the platform for the entire industry.

2.2 Data Latency & Synchronisation



The SAMAC Integrator connects with multiple independent applications and service providers. Each system is built differently and has its own data structure and update process.

Data availability depends on both the external application's update process and the SAMAC Integrator's scheduled synchronisation cycle and is **not transferred in real time**.

When a new farm, block or planting is created, or a new external data source is linked, additional time may be required for the relevant information to move through this process.

Please allow **up to 24 hours** for new or updated data to be imported and reflected within the platform before reporting a potential synchronisation issue.

2.3 Data Protection and Privacy

Several layers work together to keep your information safe:

- **Hosting and encryption:** The platform is cloud-hosted on secure servers in South Africa, personal data is encrypted at rest and in flight, and the platform is POPIA compliant.
- **Verified members only:** An account only becomes active after SAMAC has verified the registrant's details and membership status. MacShield is the only part of the platform open to the public.
- **You control access:** Farm data is only accessible to users who have been granted permission by the entity's Member Integrator Administrator. The entity's Member Integrator Administrator can change or revoke access at any time, with changes taking effect immediately.
- **Consent for data connections:** A connection to an external service provider is only established after you have explicitly consented to the processing of your data, and the connection can be removed by the Integrator Administrator of the entity at any time.
- **Privacy in benchmarks:** All benchmark results are aggregated to protect participant confidentiality. Industry, regional, provincial, and Top 20 benchmarks are only displayed where data from **at least five independent farms** has been included. Individual farm data is never identifiable or retrievable from any benchmark.
- **Accountability:** All creations, modifications, and deletions of important records are automatically recorded in an audit trail, providing a complete history of who made the change, what was changed, and when the change occurred.
- **Anonymised Platform Data:** Data used by the platform for industry insights, benchmarking, analytics and reporting is anonymised to protect the identity of individual farms, growers, and businesses. Identifiable information is

removed or masked before data is aggregated, ensuring that individual participants cannot be identified from published results.

2.4 User Permissions

User Permissions

Access to data within the SAMAC Integrator is managed through a structured permission system. Permissions determine:

- **What** information a user may access or manage (the data area);
- **What level of access** the user has (for example, view or edit); and
- **Where** the permission applies (entity, farm or block level).

Users are provided access only to the entities, farms, blocks and data areas assigned to their account, based on their approved permissions.

Data Areas

Farm information is organised into separate data areas, including Yield, Nutrition, Pests, Product Applications, Activities, Phenology, Irrigation and Risks. This allows access to be assigned according to a user's role and responsibilities.

For example:

- A spray contractor may be granted edit access to Product Applications for a specific farm without access to other data areas.
- A consultant may be granted view-only access to Nutrition data across an entity.
- A farm manager may be granted broader farm-data access for the farm(s) under their management.

Permission Hierarchy

Permissions are applied hierarchically throughout the platform:

- **Entity-level** permissions automatically apply to all farms, blocks, and plantings within that entity.
- **Farm-level** permissions apply to the selected farm and all its blocks and plantings.
- **Block-level** permissions apply only to the selected block and its associated plantings.

User Management

- Only users (Administrator) with the **User Management** permission can invite new users and manage access rights. Standard users cannot grant or modify permissions.
- Changes to permissions take effect immediately.
- Access can also be limited to data from a specific service provider. For example, an agricultural advisor may be granted access only to laboratory results without being able to view the remainder of the farm's information.

2.5 Scientific Integrity

In addition to protecting your data through robust security and access controls, the SAMAC Integrator ensures that all derived values are calculated using transparent and scientifically defensible methodologies.

Derived values are recalculated automatically where relevant, to provide industry context whenever underlying data changes, ensuring that corrections immediately flow through to all relevant scores, benchmarks and risk indicators.

The calculation methods behind key indicators, scores, benchmarks, and risk models are described in the sections that follow, enabling users to understand how each value has been derived.

2.5.1 How the MacScore is calculated

The MacScore provides a simple measure of how a planting is performing relative to its age. It compares the actual yield per tree with the yield expected from a macadamia tree of the same age.

A score of 100 means the planting performed in line with the expected yield for its age.

A score above 100 indicates performance above the expected yield.

A score below 100 indicates performance below the expected yield.

Step 1: Determine the expected yield

Expected yield is calculated using a research-derived age-yield curve:

$$\text{Expected DNIS (kg per tree)} = 1.3173 \times \text{tree age (in years)} - 0.035 \times \text{tree age}^2 - 3.3129$$

The model reflects how macadamia production typically changes as trees mature, with expected yield increasing during the establishment and development years, reaching approximately 9 kg DNIS per tree at around 19 years, and gradually declining thereafter.

Step 2: Calculate the MacScore

The planting's actual yield per tree is compared with the expected yield:

$$\text{MacScore} = (\text{delivered kg DNIS per tree} \div \text{expected kg DNIS per tree}) \times 100$$

For example:

MacScore 80 → 20% below the age-based expectation

MacScore 100 → in line with the age-based expectation

MacScore 120 → 20% above the age-based expectation (outperformed the model)

How split deliveries are handled

Where a delivery relates to more than one planting, the delivered kilograms are allocated between the plantings according to the recorded allocation percentages. This prevents the full delivery from being attributed to a single planting.

Where tree numbers have not been recorded, the system calculates the estimated tree count from the planting density:

$$\text{Estimated Tree Count} = 10,000 \div (\text{row spacing} \times \text{in-row spacing}) \times \text{block hectares}$$

The same calculation methodology is applied consistently across the MacScore Yield Score calculator and MacIQ dashboard.

Integrity safeguard

The age-yield curve is applied to tree ages from 3 to 31 years. Trees older than 31 years are evaluated using the 31-year benchmark. Where tree age cannot be determined, or trees are younger than 3 years, the system does not calculate a MacScore. This prevents an unreliable score from influencing averages and benchmarks.

Once the required planting information is corrected or completed, the MacScore is automatically recalculated.

It is therefore important to capture the true orchard establishment date for each planting for a reliable MacScore.

2.5.2 How the Yield Score benchmarks are calculated

The MacScore Yield Score compares a planting's performance with relevant industry benchmarks. To ensure a meaningful comparison, benchmarks are matched according to:

- Region
- Cultivar
- Irrigation Type

Two key benchmarks are displayed:

Industry Average

The average relative yield per tree for comparable orchards, matched by **region, cultivar and irrigation type**. The calculation is weighted by tree numbers, meaning that datasets representing more trees contribute proportionately to the Industry Average.

Target

The Target provides a higher-performance reference point against which a planting's performance can be evaluated. It is calculated as:

Target = Industry Average + 1 Standard Deviation

The Target provides a statistically derived performance goal that approximates the **top 20% boundary** of the relevant industry distribution.

Keeping Comparisons Relevant

Only irrigation types for which benchmark data is available can be selected, helping ensure that irrigated and dryland production are not incorrectly compared.

During the initial rollout, benchmarks are drawn from the validated industry dataset. As sufficient growers contribute data for each region–cultivar–irrigation combination, these benchmarks will progressively transition to calculations based on live platform data

2.5.3 How the Economic Score is calculated

The Economic Score expresses profitability as a return on production spend, calculated entirely from your own inputs of planting density, achieved yield, price and annual cost:

- Trees per hectare = $10\,000 \div (\text{row spacing} \times \text{in-row spacing})$

- Income per hectare = price × yield per tree × trees per hectare
- Profit per hectare = income per hectare – annual cost per hectare
- Breakeven yield (kg per tree) = annual cost per hectare ÷ (price × trees per hectare)
- Economic Score = (profit per kg ÷ cost per kg) × 100

An Economic Score of 100 means every rand spent on production returned a rand of profit; higher scores mean the operation earned proportionally more than it spent.

2.5.4 How Risks are calculated

The SAMAC Integrator combines farm-specific weather data, weather forecasts and pest scouting information with research-based risk models to identify conditions that may increase production risk.

STEP 1: Monitor Conditions

The platform uses hourly weather information for the farm's location, including temperature, rainfall, wind, relative humidity, evapotranspiration and vapour pressure deficit (VPD). Pest scouting observations recorded in the Pest Monitor are also incorporated where relevant.

STEP 2: Calculate the risk

Different risks require different calculations. Depending on the risk and the supporting research, the SAMAC Integrator uses one of three calculation methods:

- Direct measurement: A measured value is used directly. Example: wind speed is used directly to assess whether conditions are suitable for spraying.
- Research-based modelling: Weather or other measured data is processed through a research-fitted model to calculate the expected level of pest, disease or environmental risk. Example: temperature and humidity may be combined to estimate whether conditions are favourable for the development of a particular disease.
- Accumulated or averaged conditions: Data is accumulated or averaged over a defined period and evaluated against a research-derived baseline or threshold. Example: accumulated heat units may be compared with a research-derived threshold associated with a particular development stage

The models, coefficients and default thresholds used for each risk are based on applicable industry research and are maintained centrally within the platform.

STEP 3: Determine the risk level

The calculated result is compared with the thresholds established for that particular risk and classified as:

● Low ● Medium ● High

These classifications are used consistently across the Home Risk view, risk cards, forecast grid and other risk indicators.

STEP 4: Look ahead

Weather-based risks are updated using measured weather information and forecast conditions. The models calculate potential risk up to **14 days ahead**, enabling the platform to display risk signals for the coming **7 days**.

Understanding the Risk Thresholds

The platform provides research-based default thresholds for each applicable risk.

Where functionality allows, a user may adjust a threshold to reflect the farm's own management or economic considerations. When a threshold is adjusted, the Low and Medium boundaries are scaled proportionately so that the grading structure remains consistent.

Pest Risk and Scouting Data

Pest risks that require confirmation of pest presence are only reported once the presence of the pest has been recorded in the Pest Monitor. The model never assumes a pest is present without an observation. The platform therefore combines observed pest presence with the relevant environmental conditions when calculating these risks going forward.

Understanding the Risk Graphs

“Risk cards show the level. Risk graphs show the trend.”

The risk cards provide a quick indication of the current or forecast risk level, while the graphs show how the underlying risk changes over time.

Depending on the risk, a graph may display a risk probability (%) or a measured value such as temperature, rainfall or wind speed in its relevant unit. The graphs use the same underlying calculated values used to determine the Low, Medium and High risk classifications. This allows users to see not only the level of risk, but also whether conditions are increasing, decreasing or remaining stable.

Important: Risk indicators provide **decision support**, not treatment recommendations. They should be interpreted together with orchard observations, scouting information and appropriate professional or technical advice.

2.5.5 Where weather data comes from

Weather data is supplied through the integration of the Open-Meteo data through their provided API. Open-Meteo provides a professional weather-model service that combines national and international weather models with reanalysis data to provide spatial weather information. As soon as your farm and blocks were created, the block polygon is linked to a weather source at the block's central coordinate: a data source is created for the block's exact location, as adjusted for the altitude of its plantings. This is an important correction in mountainous production areas.

Each source provides:

- hourly readings of temperature, rainfall, relative humidity, wind speed, vapour pressure deficit (VPD) and reference evapotranspiration (ET0),

- a 16-day forecast that is refreshed (or pulled through the API) continually, and
- roughly two years of historical records are automatically backfilled when a new block is added and the integration were successful (note that this can take up to 48 hours for the farm, depending on the number of blocks created).

Risk models are therefore applied to your specific blocks rather than for a distant weather station and can look 16-days ahead and 2-years back.

2.5.6 How the Top 20 (T20) benchmarks are calculated

T20 = the performance of the top 20% of comparable regions and plantings; not the top 20 growers *per se*.

The T20 benchmark provides a view of how the top-performing comparable orchards are performing. It answers a simple question: *“How are the best performers, under conditions and cultivars similar to mine, performing?”*

T20 refers to the top 20%, not the top 20 growers. Using a percentage allows the benchmark to remain relevant as the number of growers contributing data increases.

The SAMAC Integrator uses two related T20 calculations, depending on where the benchmark is displayed.

MacScore T20 (Yield dashboard): this ranks the cultivar-irrigation benchmark combinations for your area by their average relative yield per tree and averages the best 20% of those combinations. The system starts at your farm's region and moves up the regional hierarchy (region, then province, then industry-wide) to the nearest level with sufficient data. It is calculated on the same scale as the MacScore, so the two numbers shown together are directly comparable: 100 means “on target” for both.

Industry Context T20 (the benchmarking panels in MacIQ): this ranks the actual plantings in your area by their measured, age-adjusted yield per tree (their average MacScore across all recorded harvests) and takes the top 20% as the comparison group. That group's real yield, quality, nutrition, pest and irrigation figures are then averaged to form the T20 column. Ranking on age-adjusted per-tree yield keeps the comparison fair between young and old orchards and between large and small farms, and membership is based on all recorded history, so the benchmark does not change as you move the date filters. Where the platform does not yet hold enough live yield history for an area, ranking falls back to the imported industry benchmark tables until enough growers are reporting.

Like for like: both T20 calculations always compare within your own irrigation class — a dryland farm is never measured against a benchmark set by irrigated orchards, and vice versa. A farm using several irrigation systems is classed by whichever covers the most planted hectares.

Privacy and statistical validity: no regional, provincial or T20 benchmark is shown unless at least five separate farms contribute data to it, and the T20 comparison group never narrows to fewer than five plantings. Where a region has too little data, the system widens to the national top 20% within the same irrigation class rather than expose a small group's figures. These safeguards protect individual growers' privacy and ensure that every benchmark shown is statistically meaningful.

2.5.7 Environmental and Spatial Map Layers

The map overlays displayed in MacIQ – Block Information provide environmental and spatial context for each farm and block. These layers are derived from recognised research and geospatial data sources, allowing users to understand both what the map represents and the information on which it is based.



Orchard Footprint

Where are the orchards located?



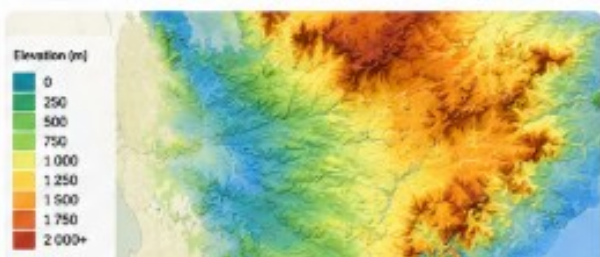
Shows mapped orchard areas across South Africa for orchards larger than one hectare.

Source: University of New England, South African National Map of Orchards



Elevation Bands

How does elevation vary?



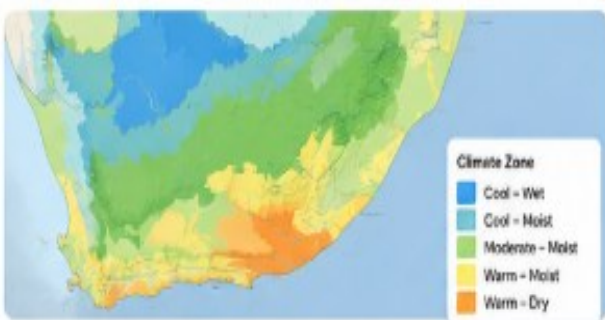
Shows differences in elevation across the mapped area, providing additional context for orchard location and site characteristics.

Source: NextGIS South Africa Elevation Data



Climate Zones

What is the long-term climate context?



Shows areas with different long-term temperature and rainfall patterns relevant to macadamia production. These zones provide context for understanding the climatic suitability of different production area.

Source: SAMAC Funded Research Project: Determination of climatically suitable growth areas in South Africa for macadamias under present climatic and projected climate change conditions (2021) by Isikhungusethu Environmental Services.



Heat unit suitability

Is seasonal heat accumulation suitable?



Shows the suitability of an area based on seasonal heat accumulation relevant to shell development and kernel oil formation. Heat units were calculated using mean daily temperatures relative to a 12.8°C base temperature.

Source: SAMAC Funded Research Project: A site classification for macadamia orchards in South Africa. ICFR final project report and associated geospatial layers prepared by I Germishuizen (2023).



Frost Risk

What is the potential frost exposure?



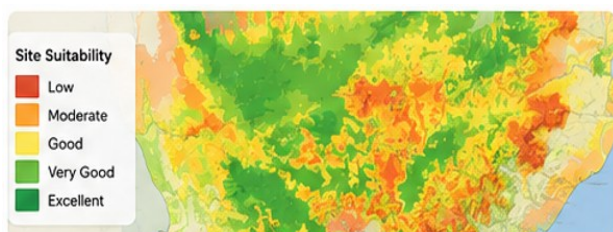
Shows areas with different levels of potential frost exposure. The classification considers frost frequency, duration and occurrence. Where suitable climate-change frost datasets were unavailable, monthly minimum temperatures were used to help estimate potential frost risk. Frost is generally defined as an air temperature of 0°C or lower, measured between 1.25 m and 2.0 m above ground level within an appropriate weather shelter.

Source: SAMAC Funded Research Project: A site classification for macadamia orchards in South Africa. ICFR final project report and associated geospatial layers prepared by I Germishuizen (2023).



Overall site suitability

What do the environmental layers indicate together?



Brings relevant environmental layers together to provide an overall indication of site suitability for macadamia production.

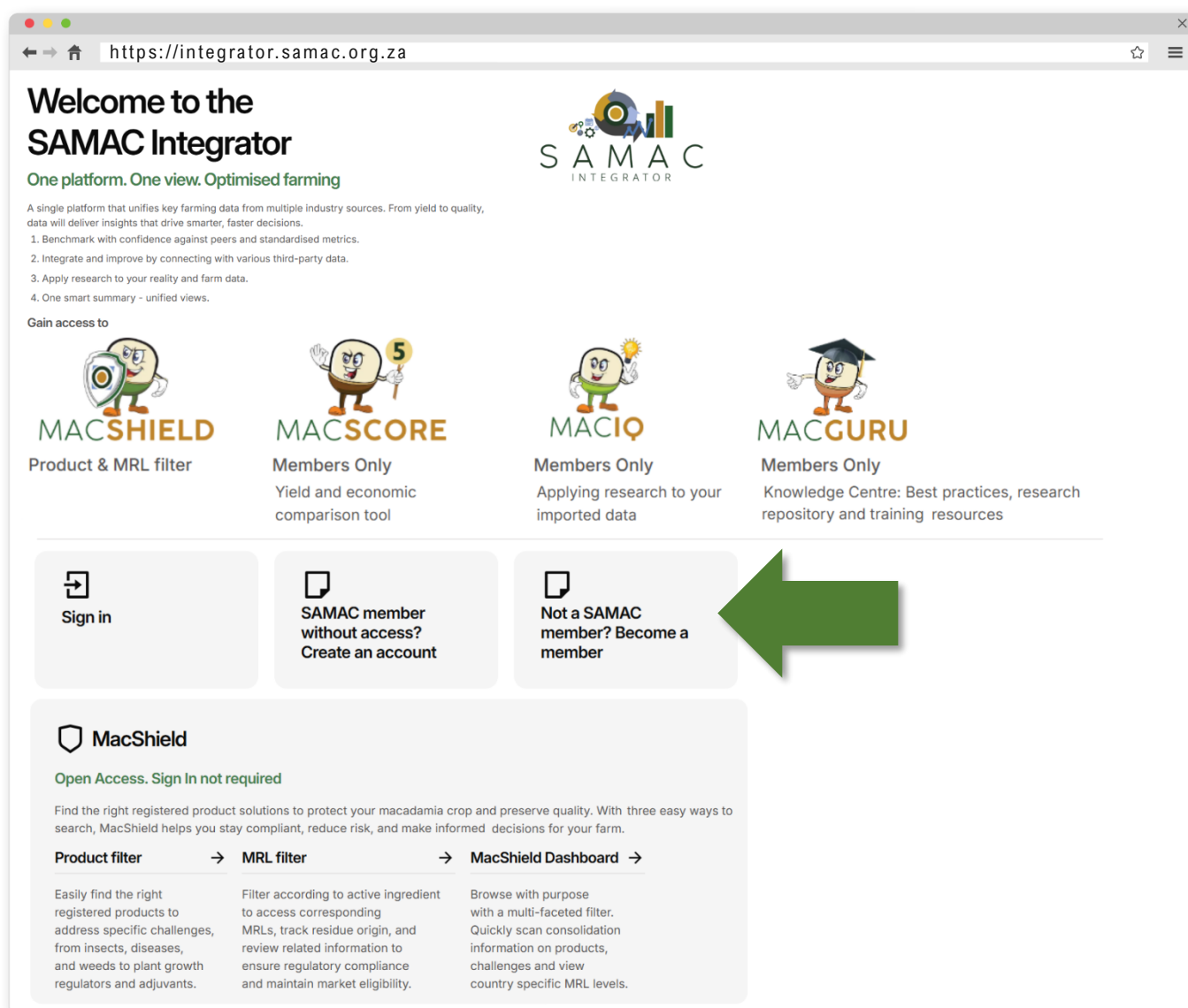
Methodology: Utilized the South African Atlas of Climatology and Agrohydrology and coordinates coupled with DNIS yields of existing South African macadamia orchards. Each layer was classified into suitability classes (optimal, sub-optimal, unsuitable) based on thresholds from literature and industry guidelines.

3 Accessibility

The SAMAC Integrator can be accessed through any modern internet browser. Users are encouraged to use the latest versions of Google Chrome, Microsoft Edge, Mozilla Firefox, or Safari to ensure full functionality and compatibility with platform features.

To access the platform, navigate to the SAMAC Integrator website and select either

- the “Create an account” option if you are a first-time user, or
- the “Sign in” option if you already have a SAMAC Integrator account.
- If you are not a SAMAC member yet, use the “Become a member” button to apply for SAMAC membership.



The landing page provides an overview of the four integrated tools available within the platform, namely MacShield, MacScore, MacIQ, and MacGuru. Users may access MacShield without logging in; however, access to the remaining tools requires an approved account and active membership status. Before proceeding, users should familiarise themselves with the available functionality and understand how the different modules contribute to integrated farm management and decision support.

3.1 Create an account

New users are required to register a SAMAC Integrator account before accessing the full functionality of the platform. Complete all required personal information fields, including your name, surname, contact number, and email address. Users must also provide their SAMAC Grower Code and associated company information to ensure that access rights are linked to the correct farming operation.

The Desired Role field allows users to indicate their primary function within the organisation. Typical roles include Grower, Farm Manager, Consultant, Researcher, Processor, or Administrator.

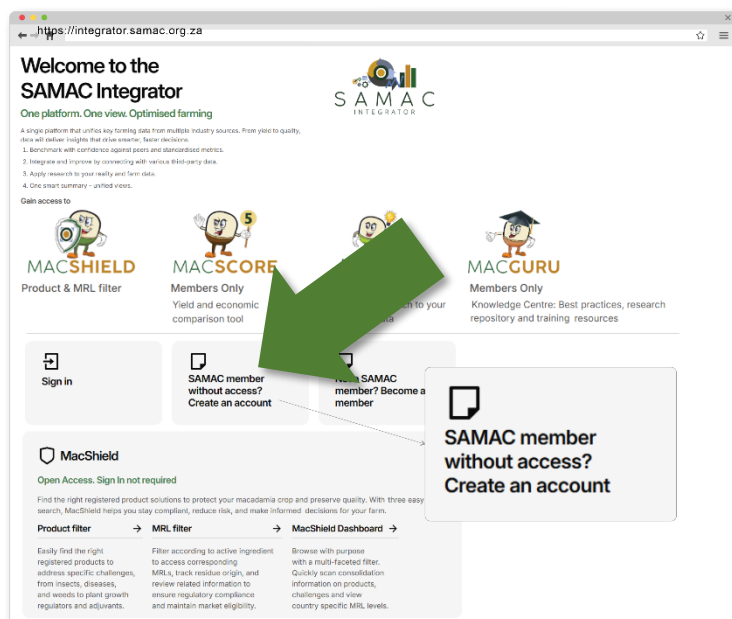
After completing all required information, users must review and accept the Terms and Conditions before selecting Register. Once submitted, the registration request is forwarded to SAMAC for administrative approval. Users will receive a confirmation email once access has been approved.

Registration steps

Step 01

Visit <https://integrator.samac.org.za>.

Select SAMAC member without access? Create an account.

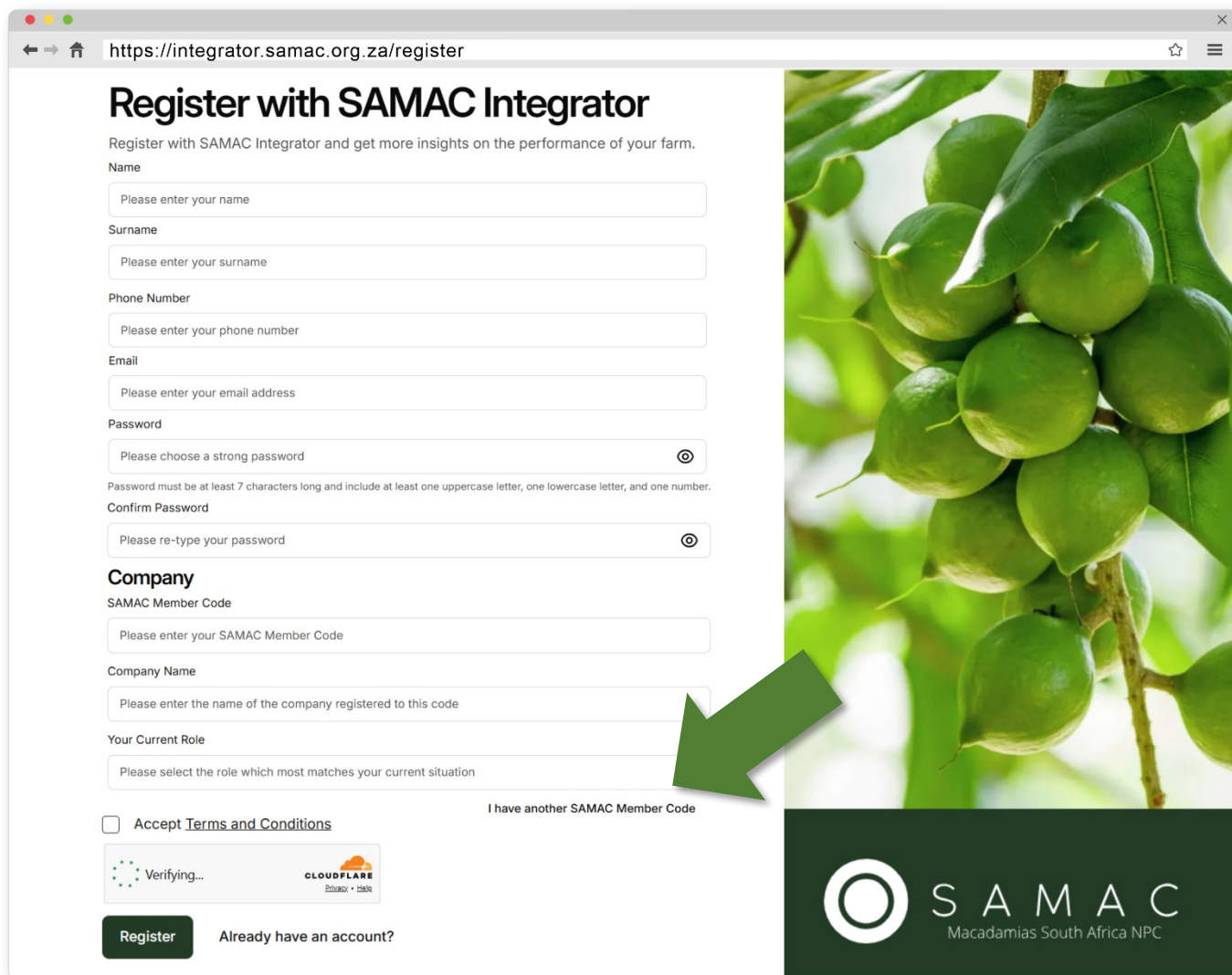


Step 02

On the Welcome Page, select “Create an account”. The registration form asks for your Name, Surname, Phone Number and Email, and lets you choose a password (the form indicates the strength requirements).

Step 03

Under Company, enter your SAMAC Member Code, your Company Name and Your Current Role. If you operate under more than one SAMAC membership, click “I have another SAMAC Member Code” and add each additional company.



Register with SAMAC Integrator

Register with SAMAC Integrator and get more insights on the performance of your farm.

Name

Please enter your name

Surname

Please enter your surname

Phone Number

Please enter your phone number

Email

Please enter your email address

Password

Please choose a strong password

Password must be at least 7 characters long and include at least one uppercase letter, one lowercase letter, and one number.

Confirm Password

Please re-type your password

Company

SAMAC Member Code

Please enter your SAMAC Member Code

Company Name

Please enter the name of the company registered to this code

Your Current Role

Please select the role which most matches your current situation

☐ Accept [Terms and Conditions](#)

I have another SAMAC Member Code

Verifying... CLOUDFLARE

Register

Already have an account?

SAMAC
Macadamias South Africa NPC

Step 04: Accept the Terms and Conditions, complete the security check

Step 05: Click Register.

How do I know my registration was successful?

- ✓ A “Registration Successful” message will appear on screen.
- ✓ A confirmation email will be sent from integrator@samac.org.za.

Is my registration automatically approved?

It depends on whether the entity’s Member Integrator Administrator has already been pre-approved by SAMAC:

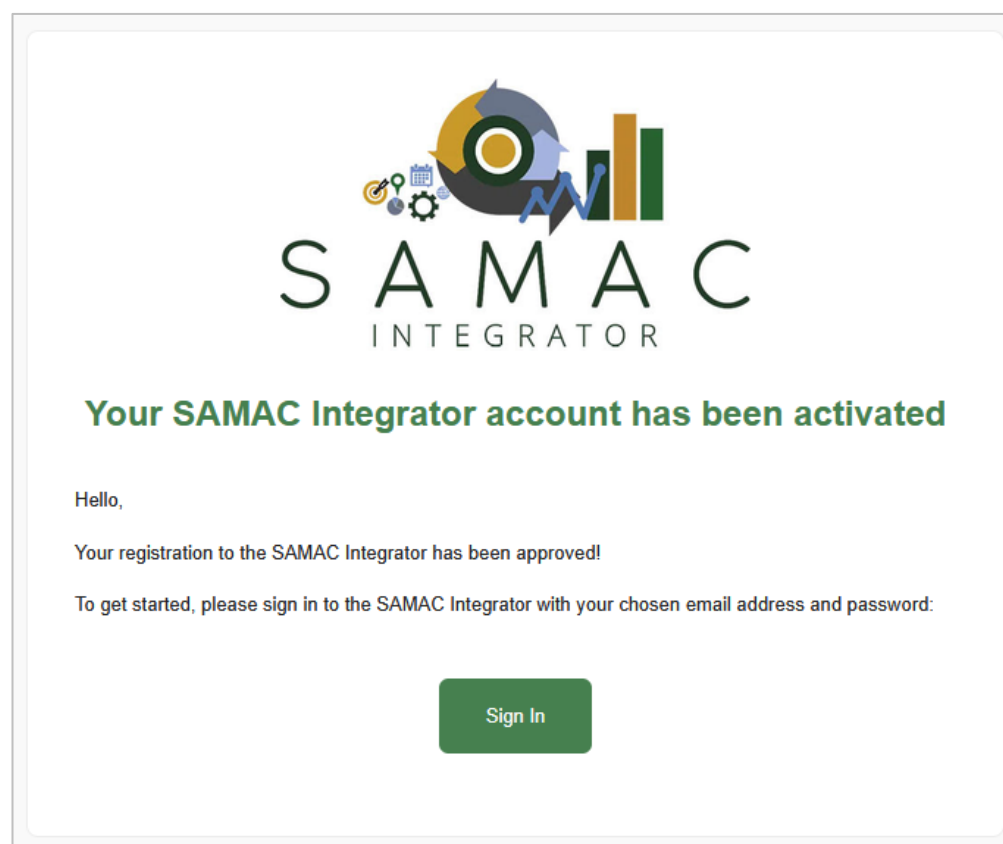
- Pre-approved: If the Member Integrator Administrator was confirmed through SAMAC’s pre-registration process during the Communications Campaign launched in May 2026, the registration is approved automatically and activated immediately.
- Not pre-approved: If not, SAMAC’s Membership Team will review the registration. Once approved and activated, the system will send a confirmation email.

Why the wait?

Registration is deliberately not automatic.

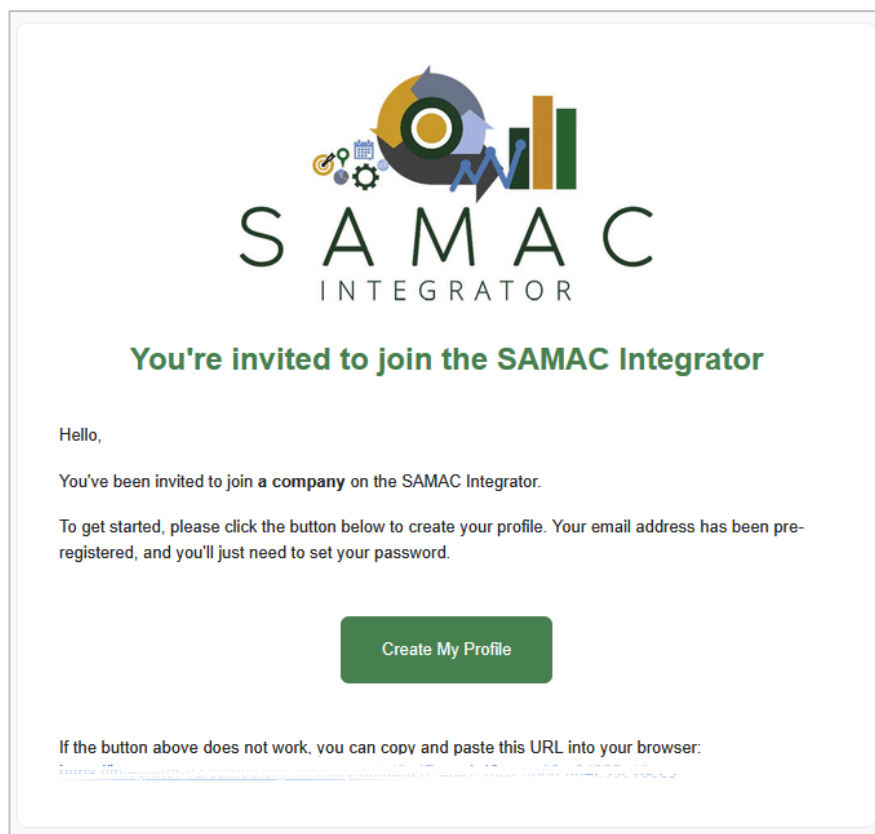
Your application goes to the SAMAC administrators, who verify your details and membership status and match each company you entered, by its name and SAMAC member code, to the correct registered entity in the platform. Your account is then created with access rights linked to that entity and your role in it. This human verification step is part of what keeps the platform safe: nobody can gain access to a farming operation's data simply by typing in its name during registration.

Once approved, you will receive an email titled "Your SAMAC Integrator account has been activated", with a Sign In button that takes you straight to the login page. Sign in with your email address and the password you chose at registration, there is nothing further to verify.



Invited users

If an administrator or a farm owner invites you to the platform instead, you will receive an email titled "Invitation to join SAMAC Integrator" with a "Create My Profile" link. This takes you to the Verify page, where you confirm your email address, choose a password, accept the Terms and Conditions and click Verify. Your account is active immediately, because the invitation itself was already approved.

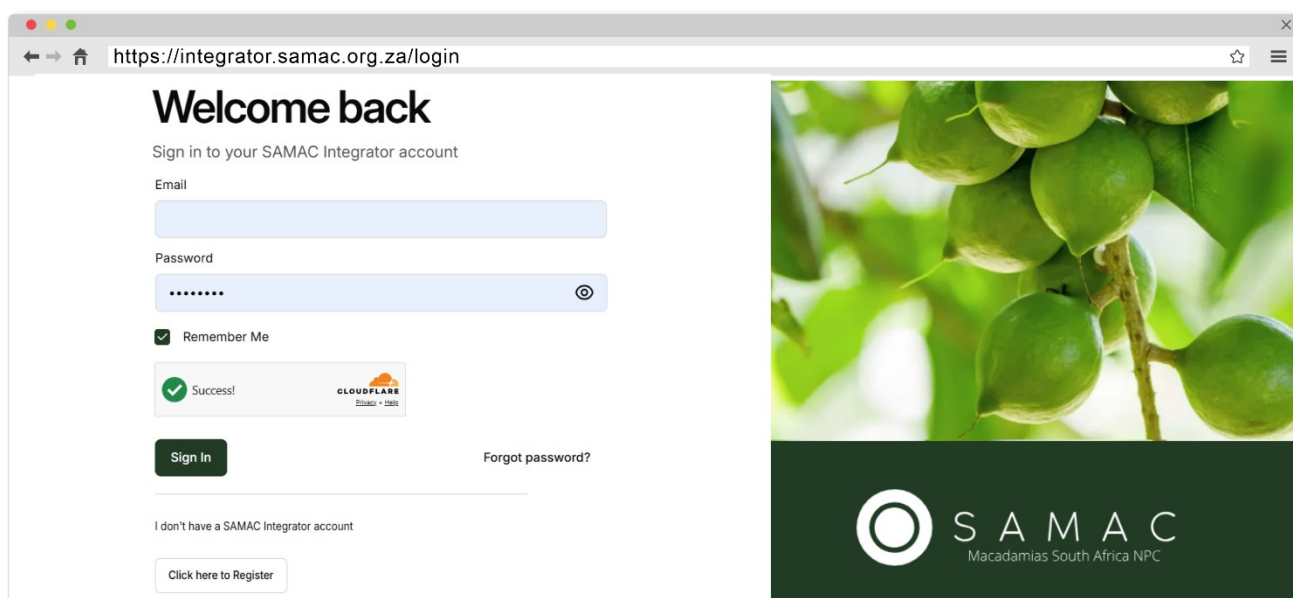


3.2 Sign In & Return Visits

Once an account has been approved, users may access the platform directly by entering their registered email address and password on the Sign In/Login page:

<https://integrator.samac.org.za/login>

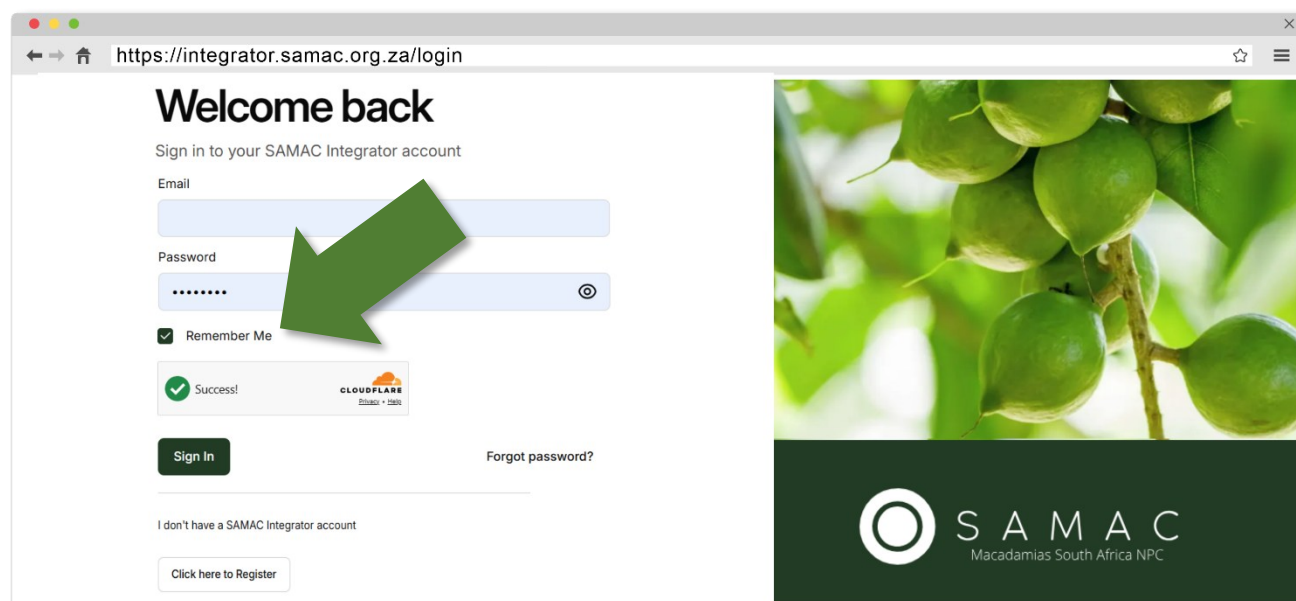
Tip: Bookmark the Sign In page for quick and easy access on future visits.



Keep Your Account Secure

Your login details provide access to information made available to your account and should be kept secure.

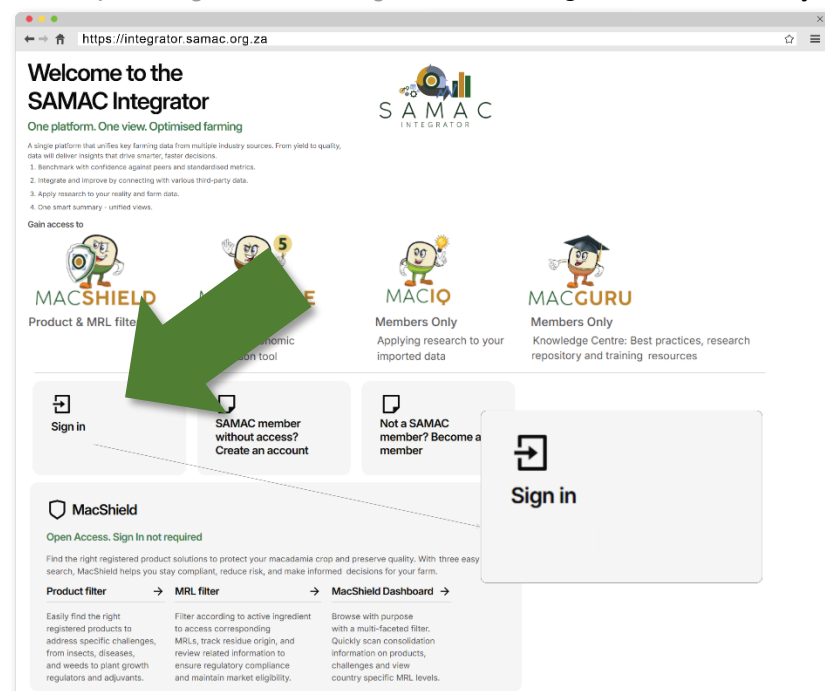
- Never share your password with another person.
- Select Remember Me only when using your own trusted device.
- Do not select Remember Me when using a shared or public computer.
- Always sign out when using a device that others can access.



Successful authentication will direct the user to the Home Dashboard where all platform modules become available according to their assigned access permissions.

Alternatively, to visit the Sign In/Login page:

Visit <https://integrator.samac.org.za> → select **Sign In** → from there you will be directed to the login page.

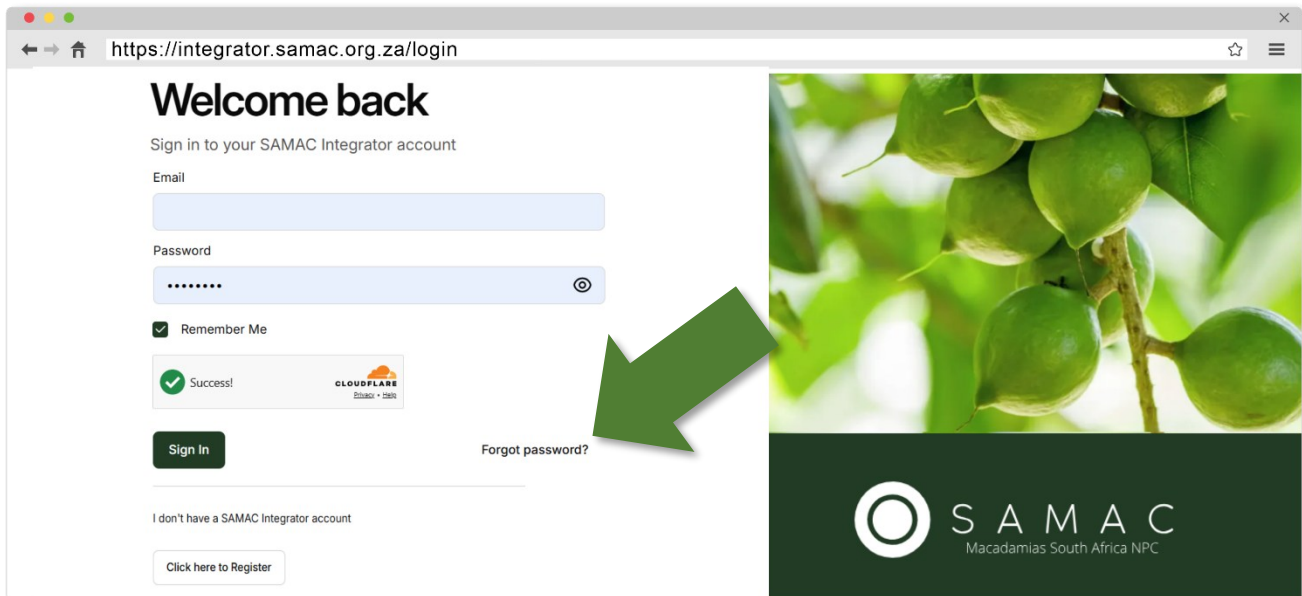


3.3 Password recovery

If a user forgets their password, the Forgot Password function can be used to restore access.

Step 01

To reset a password, select Forgot Password on the login page (<https://integrator.samac.org.za/login>):



https://integrator.samac.org.za/login

Welcome back

Sign in to your SAMAC Integrator account

Email

Password

☒ Remember Me

Success! 

Sign In

Forgot password?

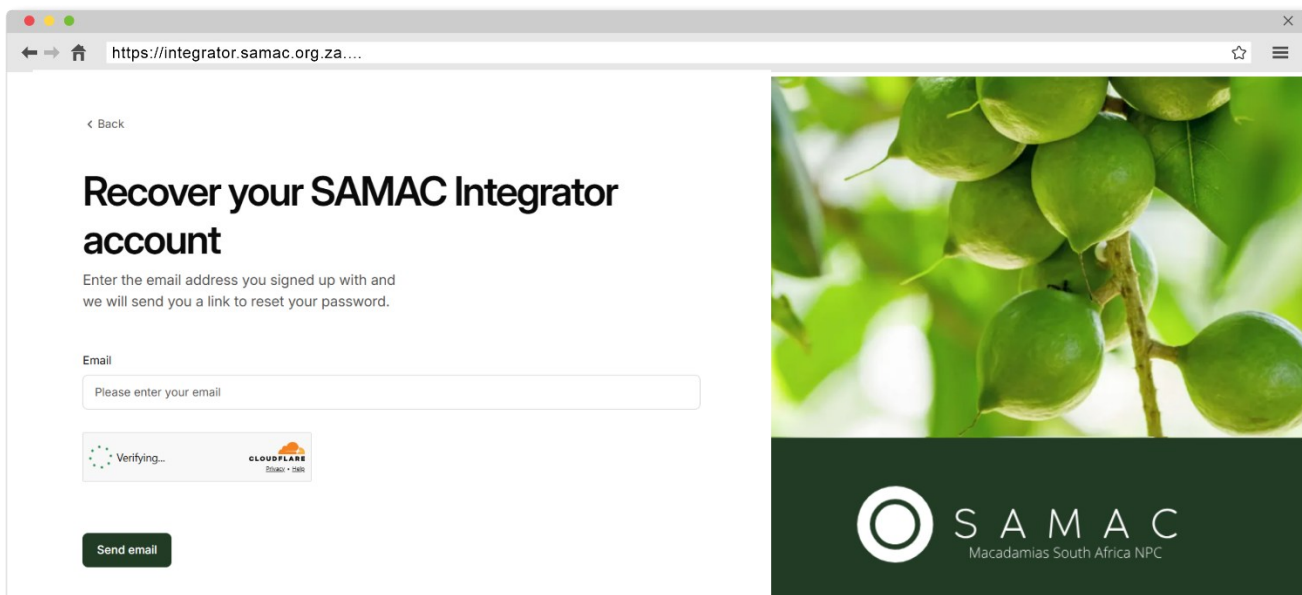
I don't have a SAMAC Integrator account

Click here to Register

SAMAC
Macadamias South Africa NPC

Step 02

Enter the email address associated with the account and select Send email.



https://integrator.samac.org.za/...

< Back

Recover your SAMAC Integrator account

Enter the email address you signed up with and we will send you a link to reset your password.

Email

Please enter your email

Verifying... 

Send email

SAMAC
Macadamias South Africa NPC

Step 03

A password reset link will be sent to your registered email address. For security, the same message is shown whether an account exists under that address. If you do not receive the email, please check your Spam or Junk folder.

Step 04

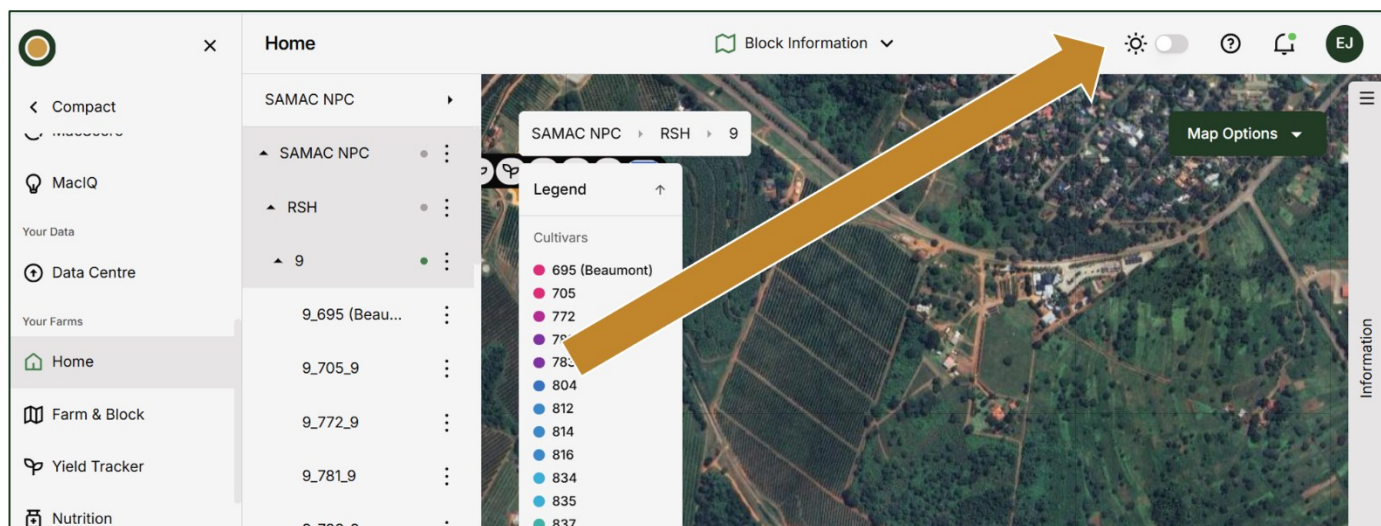
Check your inbox for the email titled “Recover your SAMAC Integrator account” and click “Reset My Password”. The link is valid for 24 hours and stops working as soon as your password has been changed.

Step 05

On the reset page, enter and confirm your new password and click “Update password”. You are returned to the Sign In page and can sign in immediately.

4 Functional keys & navigation

The SAMAC Integrator includes several functional keys that are available throughout the platform to improve navigation, accessibility, and the user experience. These tools remain accessible in the top right-hand corner regardless of the module being used.



The platform includes an automated introductory navigation tour that highlights the key features and functions available on each page and familiarises users with the platform layout. The purpose of this tour is to familiarise users with the platform layout, navigation tools, map functionality, and key analytical features. The navigation tour provides an overview of the most important components of the platform and can be repeated later if required. Users are encouraged to complete the onboarding tour in full before using the analytical modules.

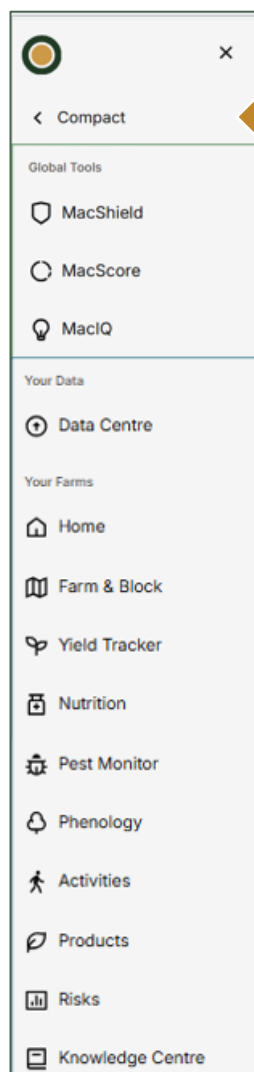
4.1 Functional Keys

	Colour Mode: You can switch between light and dark colour schemes using this button. The Integrator will remember your preference for next time.
	Interactive Navigation Tour: Click this button to access the help menu. From here you can restart the Step-through Guide for the page you are currently on or contact our support team if you need further assistance.
	Notifications: Click this button to see any notifications you may have. Notifications include updates when new data has been imported through an external service provider, when someone you invited to the platform has joined, and other important updates related to your account and farm data. When selected a sidebar opens which can be closed and revisited.

	Profile: Click this button to open your profile menu. From here you can go to your Profile page which allows you to change your name, email or password and if you have sufficient access, invite new users to join your farms. You can also log out of the Integrator from this menu.
	Breadcrumbs: the three dots open additional menu items when selected.
	Tooltips: A tooltip provides the definitions of certain terminology or more information on a certain topic. When selected a sidebar opens which can be closed and revisited.

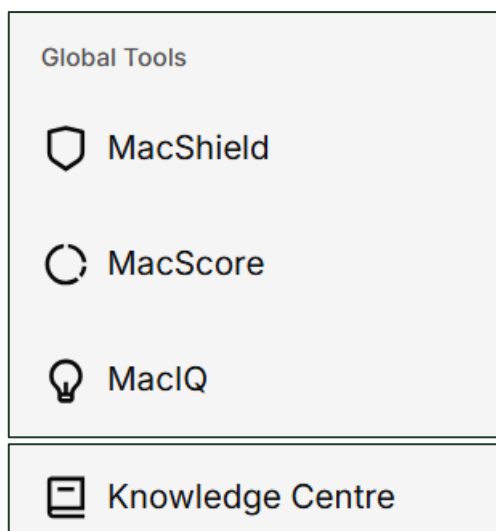
4.2 Navigation

Main Navigation: This sidebar allows you to navigate to all sections of the Integrator. You can expand and collapse the sidebar using the "Compact" button at the top of the sidebar, this allows more space for your data if you are working on a smaller screen.



5 Global Tools

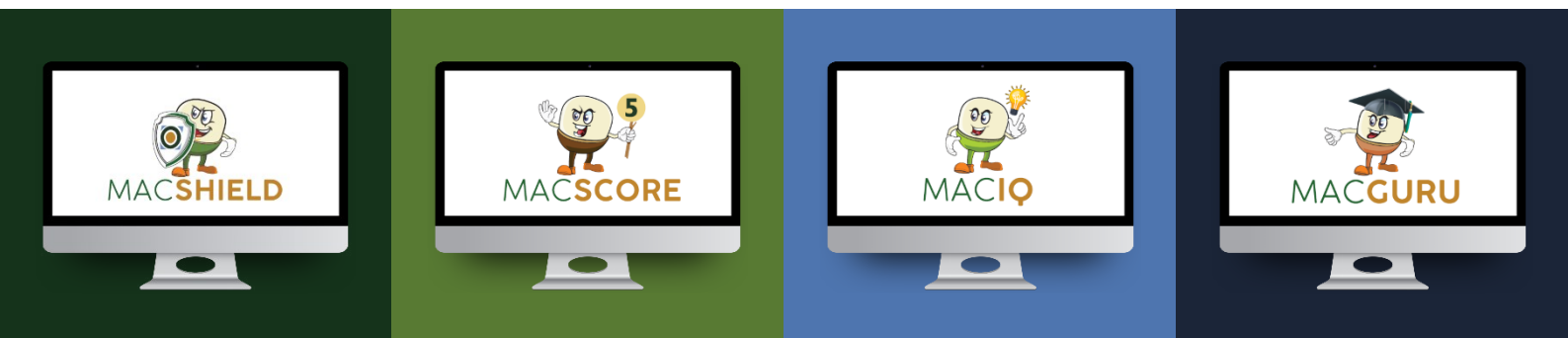
By using the four functional pillars of the SAMAC Integrator, the entity and farm can easily meet the basic compliance requirements and better data-driven decision-making. At its core, the platform functions as both a data integration engine and a decision-support system, linking spatial, biological, and management datasets to provide actionable insights at farm, block, and industry level. The SAMAC Integrator is built around four integrated pillars that work together to provide a complete decision-support environment:



The SAMAC Integrator is built around **four integrated analytical tools** that operate across all modules:

1. **MacShield:** Helps you find the right registered solution to protect your crop and preserve quality.
2. **MacScore:** Informed Calculators for Yield and Economic Analysis.
3. **MacIQ:** Integrate your data and interprets relationships between datasets to generate actionable insights.
4. **MacGuru:** Provides industry-level Knowledge Centre and context and access to best-practice guidance and research resources in one place.

These tools do not function in isolation; rather, they continuously draw from the same underlying datasets to provide aligned outputs.



MacShield is open to the public, whereas the other 3 tools are only accessible to members in good standing.

MacShield ensures that users apply the correct products in a compliant manner. MacScore evaluates the outcomes of management decisions through benchmarking and performance analysis. MacIQ interprets relationships between datasets and identifies the drivers of success or risk. MacGuru provides the knowledge and context needed to implement best-practice management strategies.

MacShield

MacShield is the crop protection and compliance module of the platform. It assists users in identifying registered products, accessing product labels and safety datasheets, evaluating active ingredients, and verifying Maximum Residue Limits (MRLs) for different export markets. MacShield enables growers and advisors to select appropriate crop protection products while ensuring compliance with local and international market requirements.

MacScore

MacScore is the performance benchmarking and economic analysis module. It evaluates farm and block performance using standardised production and quality indicators such as yield, costs and price. The module compares individual performance against industry benchmarks and identifies opportunities for improvement through objective performance measurement.

MacIQ

MacIQ is the intelligence and analytics engine of the platform. It integrates multiple datasets, including yield, nutrition, pest monitoring, phenology, environmental conditions, and farm activities, to identify relationships and generate actionable insights. The purpose of MacIQ is to transform data into knowledge by helping users understand the factors that influence production outcomes and management effectiveness.

MacGuru

MacGuru serves as the knowledge and learning centre of the platform. It provides access to research findings, technical articles, best-practice guidelines, training material, standard operating procedures, and industry resources. MacGuru allows users to access trusted information and apply current scientific knowledge to practical farming decisions.

Together, these four tools transform farm data into actionable intelligence, enabling users to improve productivity, reduce risk, strengthen compliance, and support sustainable long-term growth within the macadamia industry.

6.



MACSHIELD

MacShield is the crop protection and compliance component of the SAMAC Integrator.

The module provides access to:

- registered crop protection products,
- active ingredient information,
- product labels,
- safety datasheets,
- preharvest intervals, and
- maximum residue limit (MRL) information.

The purpose of MacShield is to support compliant, effective, and responsible crop protection decisions.

MacShield consists of three key components:

1. Product Filter
2. MRL Filter
3. Interactive Dashboard

How to access MacShield

To access MacShield, navigate to MacShield at the bottom of the SAMAC Integrator Welcome Page or from the Global Tools menu on the left-hand side once signed in to the SAMAC Integrator.



MacShield

Open Access. Sign In not required

Find the right registered product solutions to protect your macadamia crop and preserve quality. With three easy ways to search, MacShield helps you stay compliant, reduce risk, and make informed decisions for your farm.

Product filter

Easily find the right registered products to address specific challenges, from insects, diseases, and weeds to plant growth regulators and adjuvants.



MRL filter

Filter according to active ingredient to access corresponding MRLs, track residue origin, and review related information to ensure regulatory compliance and maintain market eligibility.



MacShield Dashboard

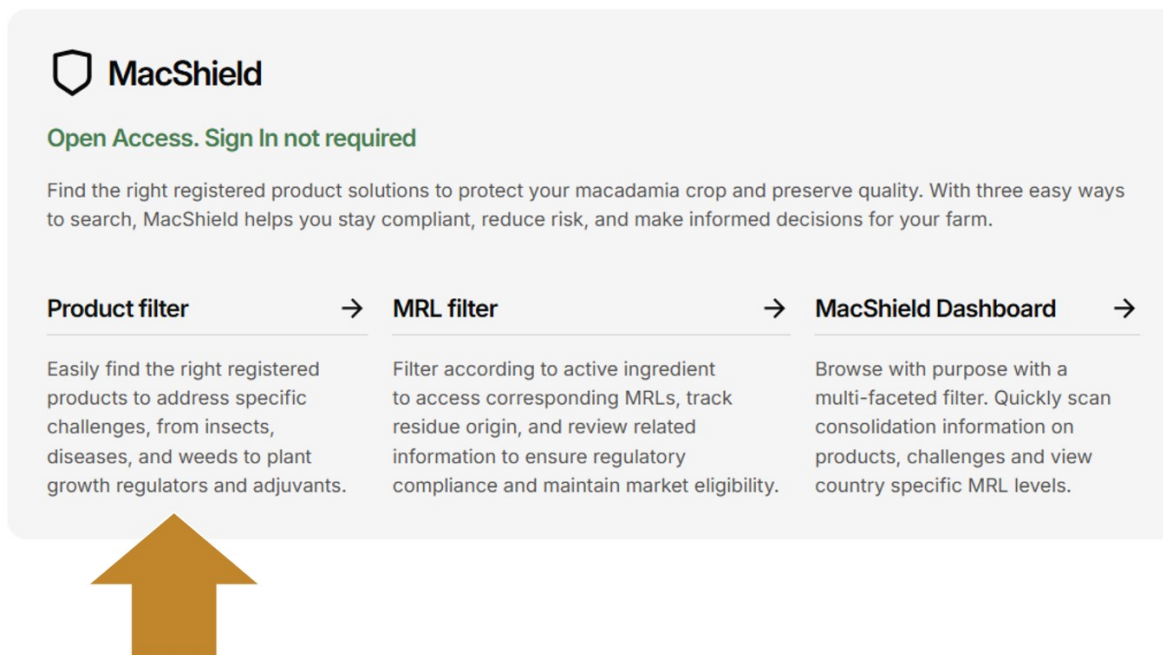


Browse with purpose with a multi-faceted filter. Quickly scan consolidation information on products, challenges and view country specific MRL levels.

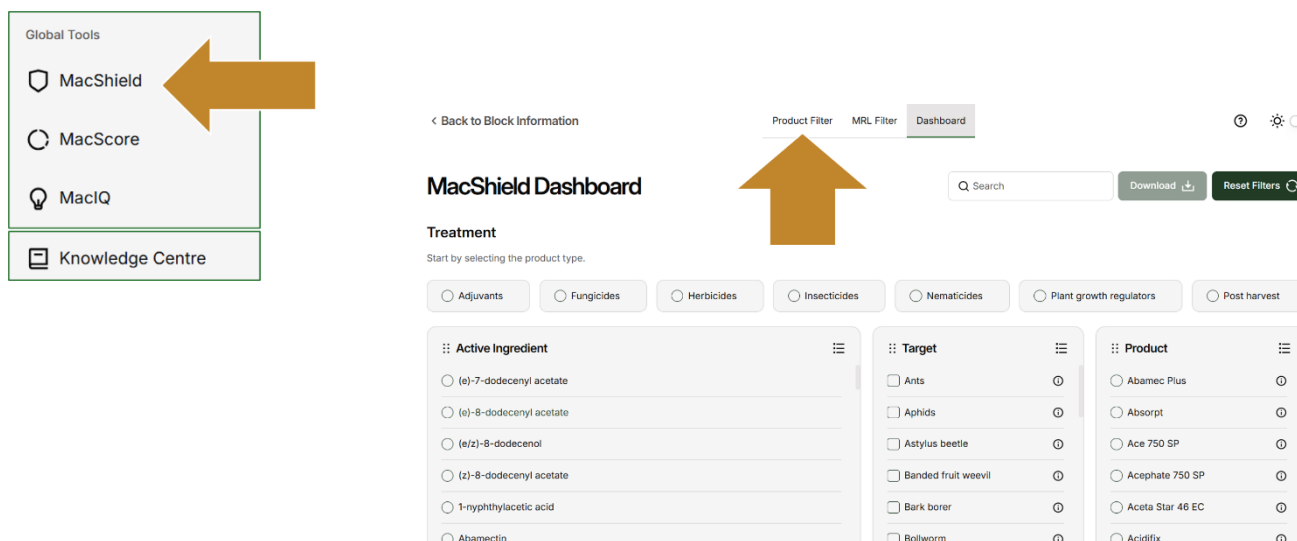
6.1 Product Filter

6.1.1 How to access the Product Filter in MacShield

For direct access to the Product Filter, select “Product Filter” at the bottom of the SAMAC Integrator Welcome Page.



The Product Filter can also be accessed once signed in to the SAMAC Integrator. Navigate to MacShield under Global Tools on the left-hand side menu. The MacShield dashboard will open, from where Product Filter can be selected from the top menu.



Follow these steps to obtain registered plant protection product information:

- Step 01: Treatment category,
- Step 02: Target to control and
- Step 03: Product of choice.

- Step 04: See the associated active ingredient(s).



Helpful tooltips ⓘ are available throughout the system to assist users during navigation and selection.

How to Use: Practical Example

What can I apply against thrips?

Step 01: In this example, in the Treatment column, the header “Insecticides” is selected.

Step 02: From the list of Targets displayed, search for and select “Thrips”.

Step 03: Registered products associated with the selected Target will be displayed from where your choice can be selected.

Step 04: The active ingredient(s) associated with the product are displayed.

[< Back to MacShield Dashboard](#)
Product Filter
MRL Filter
Dashboard
?
☀

Product Filter

Easily find the right registered products to address specific challenges, from insects, diseases, and weeds to plant growth regulators and adjuvants.

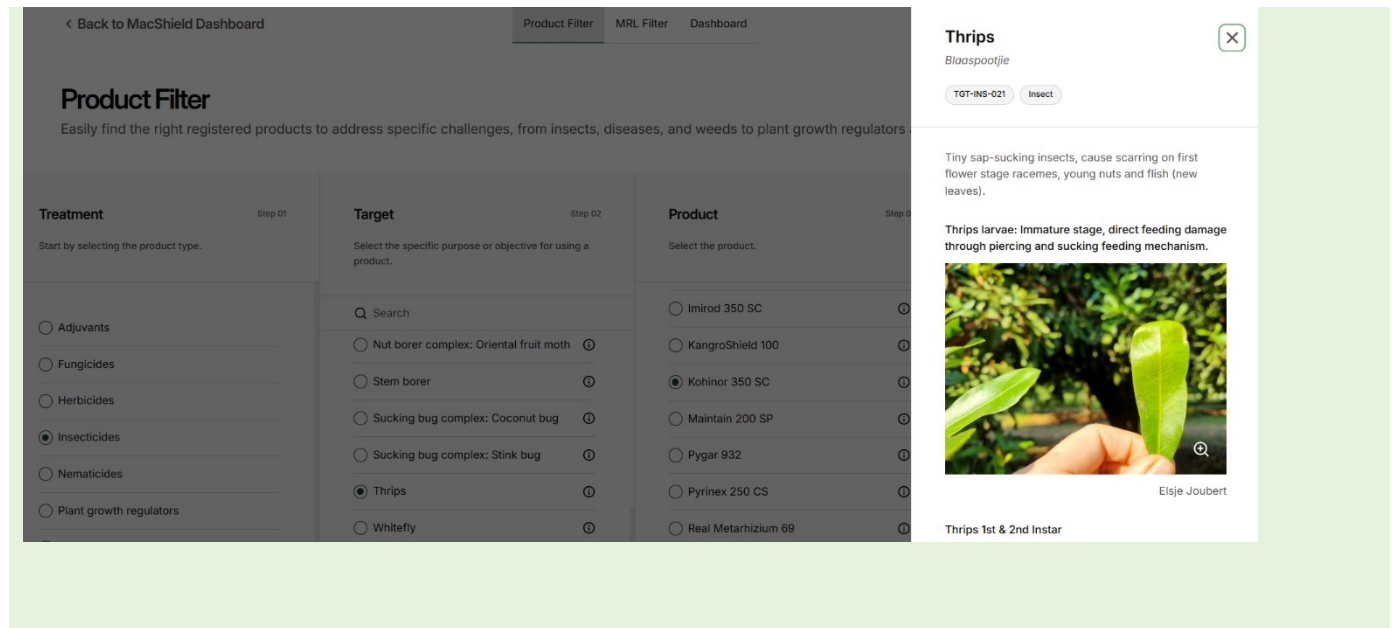
MacShield Dashboard >

Treatment Step 01	Target Step 02	Product Step 03	Active Ingredient Step 04
Start by selecting the product type. ☐ Adjuvants ☐ Fungicides ☐ Herbicides ☒ Insecticides ☐ Nematicides ☐ Plant growth regulators ☐ Post harvest	Select the specific purpose or objective for using a product. Search ☐ Nut borer complex: Oriental fruit moth ⓘ ☐ Stem borer ⓘ ☐ Sucking bug complex: Coconut bug ⓘ ☐ Sucking bug complex: Stink bug ⓘ ☒ Thrips ⓘ ☐ Whitefly ⓘ	Select the product. ☐ Imirod 350 SC ⓘ ☐ KangroShield 100 ⓘ ☒ Kohinor 350 SC ⓘ ☐ Maintain 200 SP ⓘ ☐ Pygar 932 ⓘ ☐ Pyrinex 250 CS ⓘ ☐ Real Metarhizium 69 ⓘ	Imidacloprid → Download Product Information

The product tooltip ⓘ and “Download Product Information” options provide access to the downloadable product label, material safety datasheet (MSDS), and product flyer in .PDF format (ensure that you have a PDF Reader installed). A summary of the selection is also downloadable here in .csv format. This can be viewed in Microsoft Excel.

Once a product is selected, the active ingredient(s) associated with the product are displayed. Click on the active ingredient to access more information from the MacShield Dashboard.

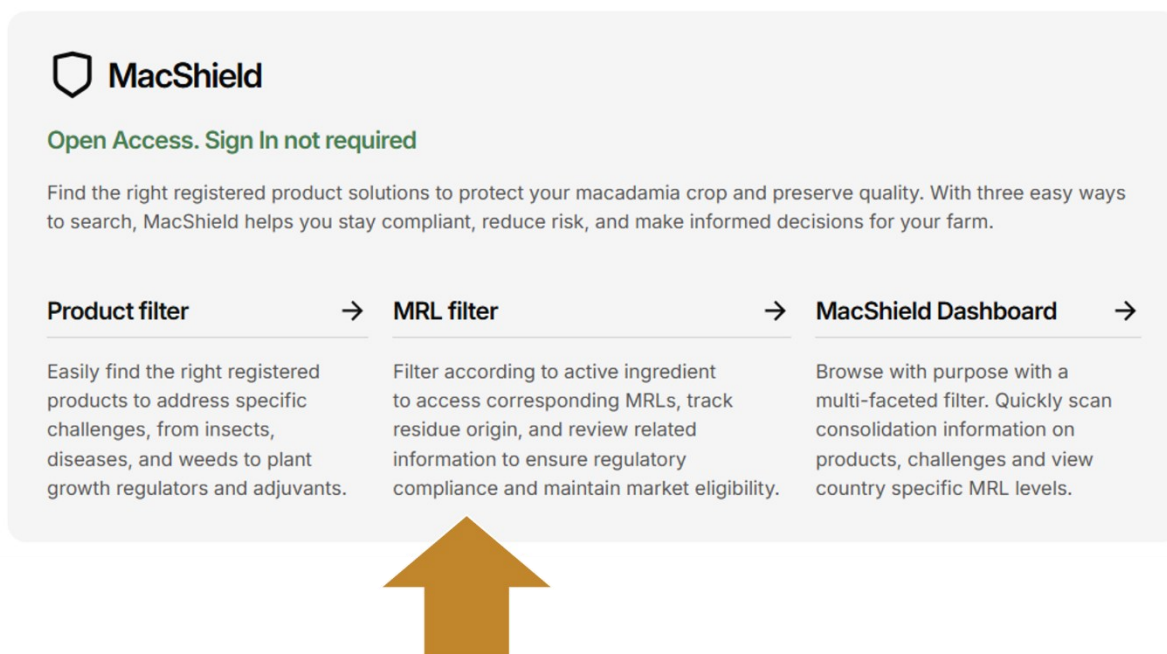
During the process of selecting a Target, the tooltip ⓘ can be selected to learn more about the pest as illustrated in the picture below at hand of the thrips example.



6.2 MRL Filter

6.2.1 How to access the MRL Filter in MacShield

For direct access to the MRL Filter, select “MRL Filter” at the bottom of the SAMAC Integrator Welcome Page.



The MRL Filter can also be accessed once signed in to the SAMAC Integrator. Navigate to MacShield under Global Tools on the left-hand side menu. The MacShield dashboard will open, from where MRL Filter can be selected from the top menu.

[< Back to Block Information](#)

Product Filter

MRL Filter

Dashboard



MacShield Dashboard

Treatment

Start by selecting the product type.

☐ Adjuvants
 ☐ Fungicides
 ☐ Herbicides
 ☐ Insecticides
 ☐ Nematicides
 ☐ Plant growth regulators
 ☐ Post harvest

Active Ingredient

- ☐ (e)-7-dodecenyl acetate
- ☐ (e)-8-dodecenyl acetate
- ☐ (e/z)-8-dodecenol
- ☐ (z)-8-dodecenyl acetate
- ☐ 1-naphthylacetic acid
- ☐ Abamectin

Target

- ☐ Ants
- ☐ Aphids
- ☐ Astylus beetle
- ☐ Banded fruit weevil
- ☐ Bark borer
- ☐ Bollworm

Product

- ☐ Abamec Plus
- ☐ Absorpt
- ☐ Ace 750 SP
- ☐ Acephate 750 SP
- ☐ Aceta Star 46 EC
- ☐ Acidifix

Follow these steps to obtain MRL information on registered plant protection active ingredients:

- Step 01: Active Ingredient,
- Step 02: Product, and
- Step 03: Target.

Helpful tooltips ⓘ are available throughout the system to assist users during navigation and selection. The Pre-harvest Interval (PHI or also known as the withholding period, in days) is displayed automatically for the filtered selection.

How to Use: Practical Example

How long should I wait before handling the nut in husk after the plant protection product application and what is the allowed residue limit of the product I chose to apply against thrips?

Step 01: In this example, in the Active Ingredient column, “Imidacloprid” is selected.

Step 02: From the list of Products, “Kohinor 350 SC” can be selected,

Step 03: The relevant Targets are displayed, and “Thrips” can be selected.

[< Back to MacShield Dashboard](#)

[Product Filter](#)
[MRL Filter](#)
[Dashboard](#)

MRL Filter

MacShield Dashboard >

Active Ingredient
Step 01

Start by selecting the active ingredient of interest.

Search

☐ Helicoverpa armigera nucleopoly...

☒ Imidacloprid

☐ Indaziflam

☐ Indoxacarb

☐ Isopropylamine salt

Product
Step 02

Select the product.

☐ Imidor 350 SC ⓘ

☐ Imirod 350 SC ⓘ

☒ Kohinor 350 SC ⓘ

Target
Step 03

Select the specific purpose or objective for using a product.

Search

☐ Aphids ⓘ

☒ Thrips ⓘ

Pre-Harvest Interval

200

Country MRL

SOUTH AFRICA	-
ASEAN COUNTRIES	0.01
AUSTRALIA	0.05
CANADA	0.05
CHILE	0.01
CHINA	0.01
EU-HARMONIZED	0.01

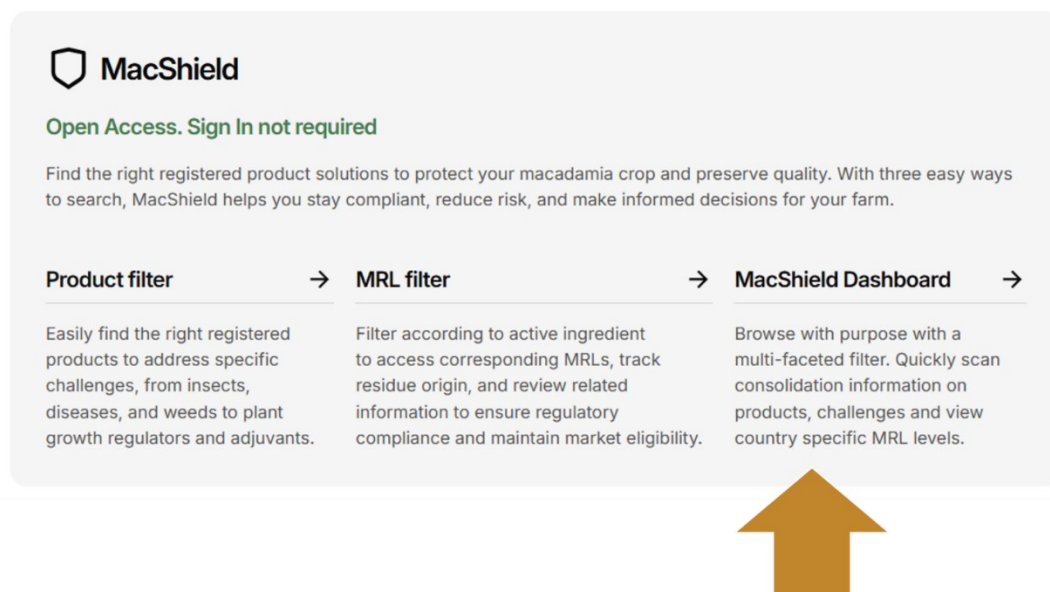
The MRL Filter enables users to evaluate residue requirements for specific markets.

This functionality assists growers and exporters in selecting products that comply with local market standards and international market requirements and minimises the risk of residue-related rejections.

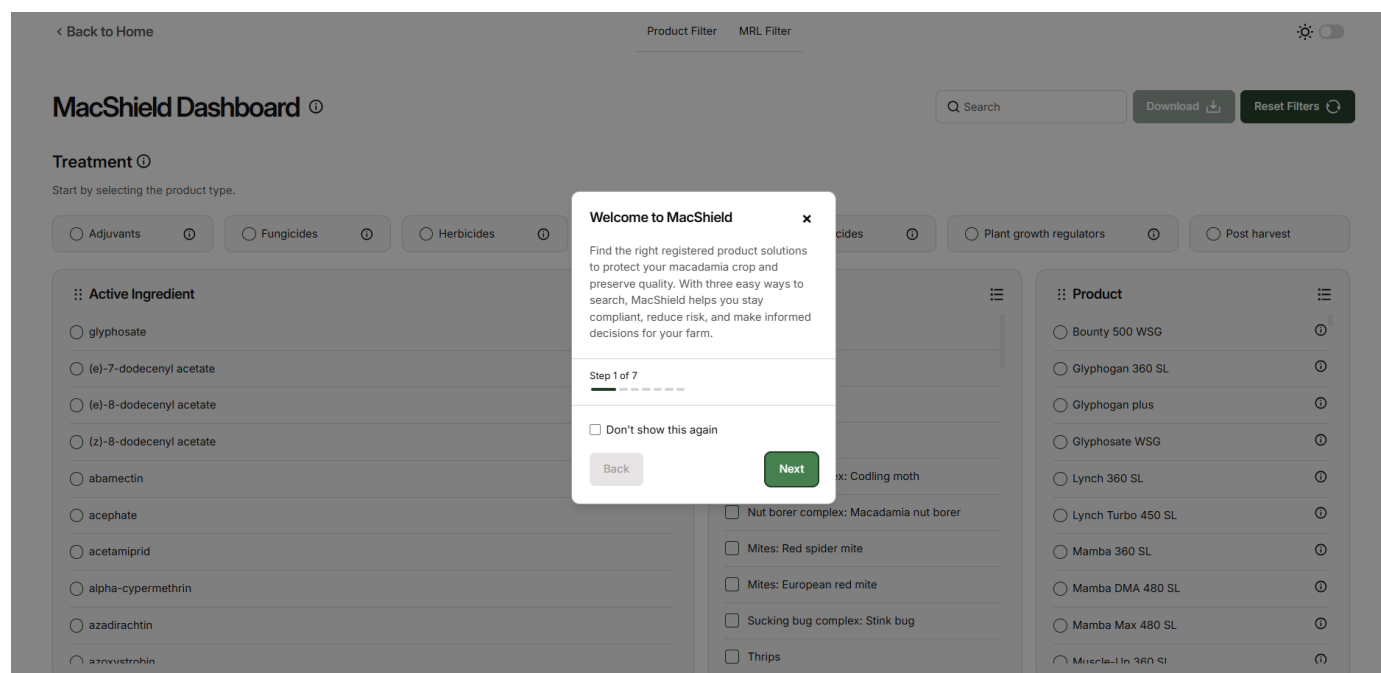
6.3 MacShield Dashboard

6.3.1 How to access the MacShield Dashboard

For direct access to the MacShield Dashboard, select “MacShield Dashboard” at the bottom of the SAMAC Integrator Welcome Page.



The MacShield Dashboard provides a consolidated overview of product information, application records, compliance information, and supporting documentation. The dashboard improves decision-making and simplifies access to critical crop protection information.



Follow these steps for easy navigation and a user-preference:

- Step 01: Start by selecting the product type under Treatment.
- Step 02: Rearrange the tiles to your preference.
- Step 03: Download the relevant filtered information or Reset the Filters.

How to Use: Practical Example

Does my preferred service provider hold my chosen thrips control product?

Step 01: In this example, in the Active Ingredient column, “Imidacloprid” is selected.

Step 02: The relevant Target: “Thrips” was selected.

Step 03: From the list of Products, “Kohinor 350 SC” was selected,

Step 04: More information is filtered, based on this filtered selection, which includes the Company and the relevant information can be Downloaded.

< Back to Home

Product Filter MRL Filter **Dashboard**

MacShield Dashboard

Treatment

Start by selecting the product type.

☐ Adjuvants
 ☐ Fungicides
 ☐ Herbicides
 ☒ Insecticides
 ☐ Nematicides
 ☐ Plant growth regulators
 ☐ Post harvest

Active Ingredient

- ☒ Imidacloprid

Target

- ☐ Nut borer complex: Carob moth
- Other options listed*
- ☐ Sucking bug complex: Stink bug
- ☒ Thrips
- ☐ Whitefly

Product

- ☐ Antset 200 SC
- Other options listed*
- ☒ Kohinor 350 SC
- ☐ Maintain 200 SP
- ☐ Pygar 932

Resistance Group

- IRAC 4A

Restricted Use

- No

Dosage

- 18 ml/tree

Effects on Beneficials

- Toxic to bees

Pre-Harvest Interval

- 200

Active Quantity

- 350 g/L

Notes

Note that imidacloprid is toxic to honeybees. Apply 2L water solution to soil directly around the base of tree trunk after clearing application area from weeds and mulch. Irrigate within 24 h after application.

Country MRL

SOUTH AFRICA	-
<i>Other options listed</i>	
CHINA	0.01
EU-HARMONIZED	0.01
GREAT BRITAIN	0.05
HONGKONG	0.05
JAPAN	0.04

Registration No.

- L8447

Company

- Adama South Africa (Pty) Ltd

7.

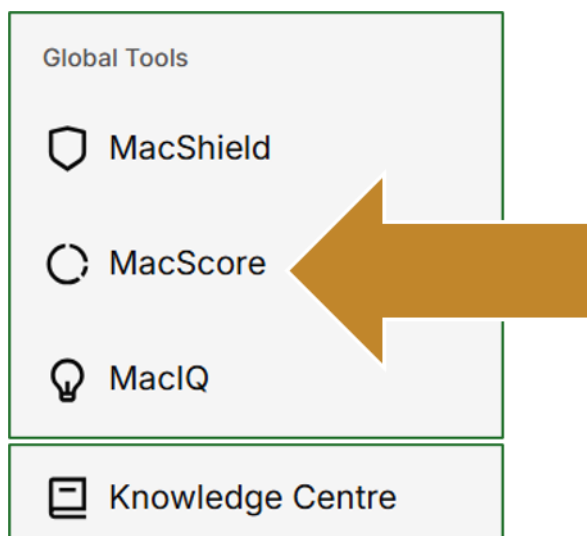


MACSCORE

7.1 MacScore

7.1.1 How to access MacScore

MacScore can be accessed once signed in to the SAMAC Integrator. Navigate to MacScore under Global Tools on the left-hand side menu. The MacScore Welcome Page will open, from where the Yield Score and Economic Score is available.



[< Go home](#)



Welcome to **MACSCORE**

Informed calculators to facilitate decision-making on the farm.

Yield Score

Calculations of macadamia yield performance based on given criteria compared to a relevant target and average, to gauge your performance.

[Yield Score](#)



Economic Score

Return on investment and breakeven calculations based on your input.

[Economic Score](#)

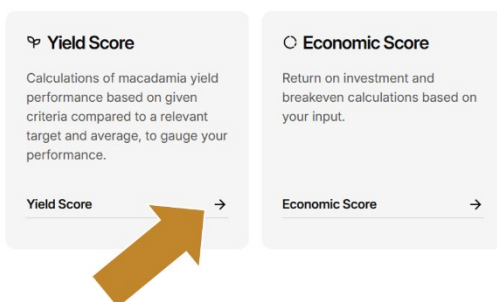


7.2 Yield Score

7.2.1 How to access the MacScore Yield Score

To access the Yield Score, click on the “Yield Score” right arrow on the MacScore Welcome Page.

< Go home



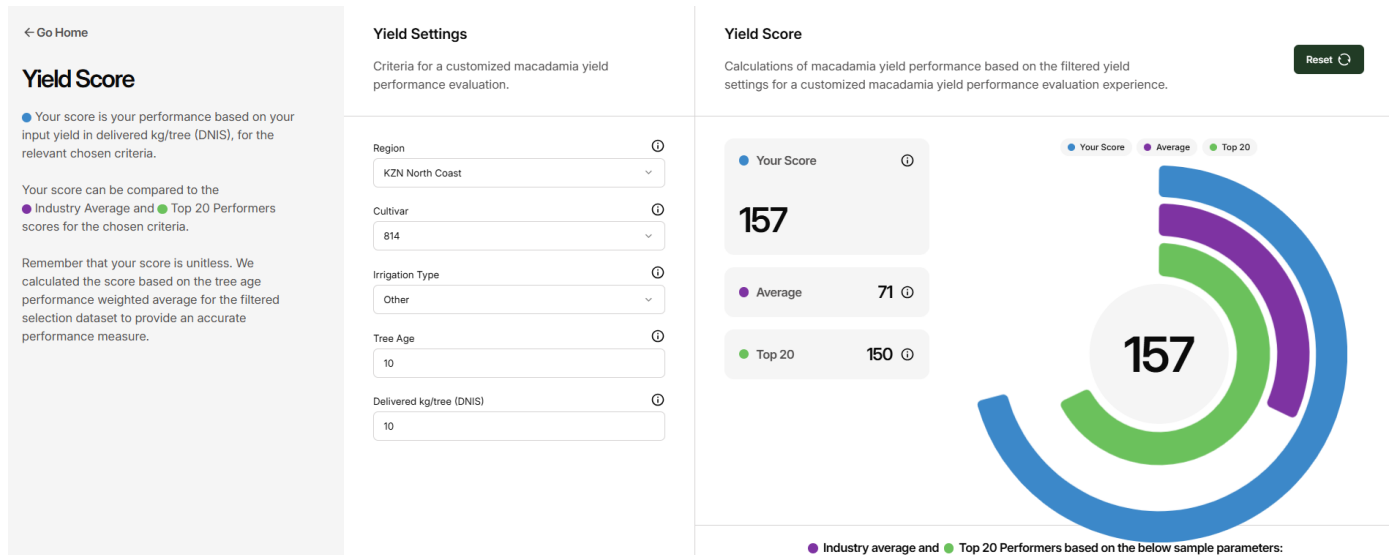
MacScore's Yield Score outputs depend on the Yield Settings inputs.

Follow these steps to obtain your Yield Score:

- Step 01: Select the relevant Region,
- Step 02: Select the relevant Cultivar,
- Step 03: Select the relevant Irrigation Type (“Dry land” or “Other”).

Helpful tooltips are available throughout the system to assist users during navigation and selection. The Pre-harvest Interval (PHI or also known as the withholding period, in days) is displayed automatically for the filtered selection.

Select the relevant Region, Cultivar, Irrigation Type (“Dry land” or “Other”), type the Tree Age to compare and the achieved DNIS yield (kg/tree). Once the yield data is provided, the system calculates the performance of the filtered group.



To interpret your yield score, see if Your Score is higher or lower than the Industry Average (calculated for the region, cultivar, irrigation type selected and age entered) and use the Top 20 comparison to identify the magnitude of the gap between Your Score and the Top 20 percentile of the dataset based on the relevant filtered selections.

Your Score is your MacScore: the entered DNIS yield per tree expressed as a percentage of the research-derived expected yield for a tree of the entered age, where 100 means “on target”. The Industry Average and Top 20 comparisons are drawn only from benchmark data matching your selected region, cultivar and irrigation type. See Section 2 (Data Integrity) for the formulas and the safeguards behind these figures. Note that a Yield Score can only be calculated for tree ages of 3 years and older.

7.3 Economic Score

7.3.1 How to access the MacScore Economic Score

To access the Economic Score, click on the “Economic Score” right arrow on the MacScore Welcome Page or on “View Economic” in the MacScore Yield Score window on the bottom left.

← Go home

 **Welcome to MACSCORE**

Informed calculators to facilitate decision-making on the farm.

Yield Score

Calculations of macadamia yield performance based on given criteria compared to a relevant target and average, to gauge your performance.

Yield Score →

Economic Score

Return on investment and breakeven calculations based on your input.

Economic Score →

← Go Home

Yield Score

● Your score is your performance based on your input yield in delivered kg/tree (DNIS), for the relevant chosen criteria.

Your score can be compared to the ● Industry Average and ● Top 20 Performers scores for the chosen criteria.

Remember that your score is unitless. We calculated the score based on the tree age performance weighted average for the filtered selection dataset to provide an accurate performance measure.



[View Economic](#)

Yield Settings

Criteria for a customized macadamia yield performance evaluation.

Region: KZN Midlands

Cultivar: 695 (Beaumont)

Irrigation Type: Dry land

Tree Age: 10

Delivered kg/tree (DNIS): 6

Based on the selections made in the Yield Score, the Economic Score further relies on your inputs of planting density, income and expenditure.

The results show your profit per hectare and per kilogram, the breakeven yield per tree required to cover your annual costs at the entered price, and an overall Economic Score expressing profit as a percentage of production spend — see Section 2 (Data Integrity) for the formulas. Results update immediately as you change your inputs.

[← Go Home](#)

Economic Score

Calculations of macadamia yield performance based on given criteria compared to a relevant target and average, to gauge your performance.

Back to Yield Score

Economic Settings

Selections and criteria for a customized economic evaluation experience.

Planting Density

Row Spacing (m)

8

In-Row Tree Spacing (m)

4

313 trees/ha

10 kg/tree (DNIS) 3.13 tons/ha

Income

Price (R/kg)

32

R 100 160 /ha

Expenses

Annual Cost (R/ha)

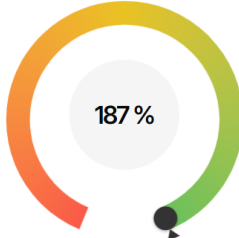
34940

R 11.16 /kg

Economic Score %

Return on investment and breakeven calculations based on your input.

Reset



187 %

Profit (R/ha)	Profit (R/kg)
R 65 220 /ha	R 20.84 /kg
Breakeven (kg/tree)	Breakeven (cost/ha)
3.49 kg/tree	R 100 160 /ha

8.



MACIQ

8.1 MacIQ Overview

MacIQ integrates multiple datasets to generate insights and support decision-making. All modules described below operate within the MacIQ framework and should be used in sequence to build a complete understanding of farm performance and risk.

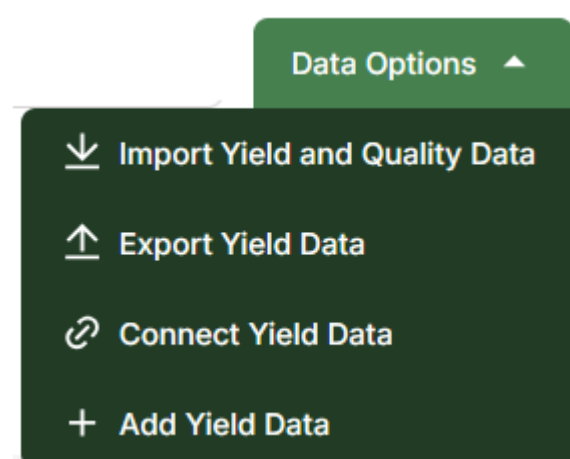
Starting with a blank farm, the following steps are recommended to get your data quickly imported and ready to be used:

1 – Data Centre	2 – Your Farms	3 – Data Centre
Farm & Block template	Check and correct	Other templates
Download the Farm & Block spreadsheet template, complete it and import it. (See Section 8.2.1)	Add any missing data to your farms and blocks by editing them, ensure block polygons are correct. (See section 8.3.1)	Now download, complete and import all other farm data templates in the Data Centre. (See Section 8.2.1)

The below features are common to all MacIQ modules:

Data Imports: Your data can be imported or connected through the Data Centre. Each Integrator module has a spreadsheet manual import which can be downloaded, completed and then imported again to fill in your data quickly.

Data Options Menu: Each module allows the manual capture of information directly into the Integrator. Look for the “Data Options” menu located in the top right on all module pages.



Import Data: Links back to the Data Centre to the appropriate spreadsheet template.

Export Data: Allows the download of a .CSV (comma-separated value) file containing the current information being displayed in the Integrator. This allows you complete freedom to export and use the data as you wish.

Connect Data: Links to the Data Centre where different external data providers can be connected and linked to feed data to the Integrator from external sources.

Add Data: Allows the manual input of data for the current Integrator module. You can add new data entries straight from this menu for each module.

Industry context: Industry context information is provided on the right-hand side slider. As soon as a representative number of farms, blocks and plantings contain information per region, province and industry-wide, these weighted averages can be compared with your filtered selection outcomes.

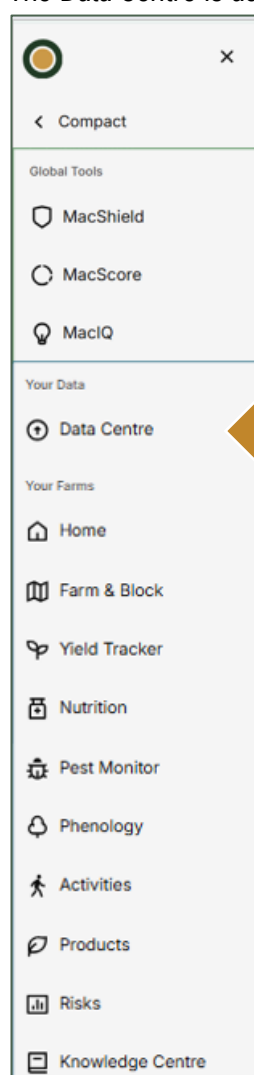
8.2 Your Data

8.2.1 Data Centre

The Data Centre provides ways to import your farm data into the SAMAC Integrator.

You can manually add your farm information via bulk-import spreadsheet templates provided. More information is provided in the Data Centre Navigation Tour when you visit the page.

The Data Centre is accessible from the main navigation sidebar, under “Your Data”.



The Data Centre is your central hub for importing data into the SAMAC Integrator and managing automated data imports. Review imported datasets and link data are correctly to a farm, block and planting.

The Data Centre is divided into three sections: Templates and Data Imports, Manage Links and Data Linkages.

Data Centre

Templates & Data Imports

Manage Links

Data Linkages

⚙️

🔍

🔔

👤

Download Templates & Import Data

Bulk upload of historical information from a template.

Block & Planting

Import your farm layout, including blocks (orchards) and planting details such as cultivars, soil types and planting dates.

Download Template

Import Now

PPP

Import your plant protection product (PPP) application records, including details such as product used, application date, target pest/disease and application method.

Download Template

Import Now

Yield and Quality

Import your yield and quality data, including harvest dates, quantities harvested (DNIS) and quality (USK, TKR) and style metrics.

Download Template

Import Now

Scouting

Import your pest scouting records, including pest and disease observations, scouting dates and locations.

Download Template

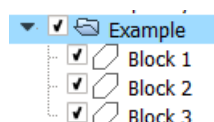
Import Now

Templates & Data Imports

- This section allows you to import farm data using downloadable Excel spreadsheet templates, enabling the rapid upload of large volumes of information into the SAMAC Integrator.
- Each template is designed for a specific type of farming data.
- The Block & Planting Import should be completed first**, as it establishes the farm structure within the SAMAC Integrator. This sheet is also included as the first sheet of all other import templates for reference to the correct planting, so you should copy your entries there once filled in. Make sure that the entity name you use in the spreadsheet matches the entity name you have been registered under in the SAMAC Integrator.

This is an example of the farm and block information completed on the import template. Note that multiple rows with the same block number will allow for plantings to be created per block. Each block holds a polygon that must be named in the .kml or .kmz file the same way as named e.g. “Block 1” in the upload template. Note the the .kml or .kmz file holding the polygons may only hold polygons, and no pins and only the polygons that is listed in the completed MS Excel template under the “Block” column.

Planting	Entity_name	Farm	Block	Cultivar	Cultivar_type	Rootstock_name	Rootstock_type	Plant_Date	Row
Block 1_695 (Beaumont)_86_720	My Entity	Example	Block 1	695 (Beaumont)	Hybrid	695 (Beaumont)	Seedling	11/1/1986	7
Block 1_A4_86_720	My Entity	Example	Block 1	A4	Hybrid	695 (Beaumont)	Seedling	11/1/1986	7
Block 2_Nelmak 2_99_112	My Entity	Example	Block 2	Nelmak 2	Hybrid	695 (Beaumont)	Seedling	11/1/1999	7
Block 3_816_05_25	My Entity	Example	Block 3	816	Integ	695 (Beaumont)	Seedling	11/1/2005	7





- Use the “Download Template” button to complete the information for upload in the correct format. Then use the “Import Now” button and follow the steps outlined below.

 **Block & Planting**

Import your farm layout, including blocks (orchards) and planting details such as cultivars, soil types and planting dates.

[Download Template](#) 

[Import Now](#) 

- Use the “Import Now” button and following the 4 steps to complete the simple upload of your blocks per farm:
Step 1: File Upload
In this step, select the file you wish to upload from your computer. After clicking proceed, the file will be uploaded for processing.

Step 2: Review

After the spreadsheet has been analysed, the Review step allows you to see what data will be imported from the spreadsheet. Only data that is different from what is already in the SAMAC Integrator is imported. If no changes were detected from the file, you will see Step 4 (Complete) immediately.

If there were errors during the import, you will see a list of the error messages and the rows in the spreadsheet which caused the errors, allowing you to correct data issues in the template. It is not recommended to proceed with an import which has errors.

Carefully review the changes before clicking proceed. As some imports will remove old data from the SAMAC Integrator before adding new data, it is critical that the data is correct before import.

Clicking Cancel will immediately abort the import and no changes will be made to the data.

Step 3: Run Import

After ensuring the reviewed changes are all correct and clicking Proceed, the data import will commence.

Step 4: Complete.

On completion of the import, the Import Complete step is shown which gives a summary of the changes made to your data.

The following templates and data import facilities exist:

Block & Planting	Import your farm layout, including blocks (orchards) and planting details such as cultivars, soil types and planting dates. Make sure the entity name in your spreadsheet matches the entity you are registered under in MacIQ.
PPP	Import your plant protection product (PPP) application records, including details such as product used, application date, target pest/disease and application method.
Yield and Quality	Import your yield and quality data, including harvest dates, quantities harvested (DNIS) and quality (USK, TKR) and quality metrics.
Scouting	Import your pest scouting records, including pest and disease observations, scouting dates and locations.
Irrigation	Import your irrigation records, including watering dates, amounts and methods.
Activity Log	Import various farm activities such as pruning, fertilization, harvesting and other management practices to keep a comprehensive record of your farm operations.
Nutrient Analysis	Import your nutrient analysis results, including soil and leaf test results to monitor and manage the nutritional status of your crops.
Combined	Import all the information listed above at once.

Manage Links

- The SAMAC Integrator can connect with various Data Service Providers or Facilities.
- You can view all the available Data Service Providers or Facilities here and connect them to your account. Since this involves the handling of your data, you will be asked to consent to the processing of your data before the connection can be established.
- Once you set up a connection in Manage Links, the SAMAC Integrator will automatically retrieve data from the selected providers at regular intervals (usually daily). Some connections will require vetting by the SAMAC Integrator team. If the connection shows as “Pending”, you will need to wait until an administrator has connected your account credentials from the Data Service Provider. You will receive an in-app notification when this connection has been established.

- The imported data will then be displayed in Data Linkages, where it can be linked to the relevant Farm, Block, and Planting within your farm structure. This allows you to automate the data import process and have all your data linked in the system without having to do manual imports.

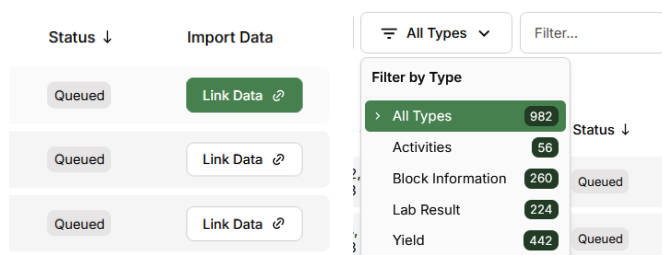
Data Linkages

- View all the data gathered from your connected Data Service Providers or Facilities.
- Choose how to import them into SAMAC Integrator.
- As Service Providers and Facilities do not always have access to your farm structure or may not include this information with the data they supply, the imported data must be linked to the correct block and planting on your farm.
- This section enables you to allocate imported data for full traceability, ensuring that all information is accurately associated and available for reporting, analysis, and decision-making.

How to link a Data Service Provider Import to your Blocks and Plantings

When a connected provider (for example a processor or a laboratory) delivers data, it appears under Data Linkages. Deliveries usually arrive without your farm structure attached, so the platform needs to ask you to say which Farm, Block and Planting each delivery belongs to. This is the single most important step for traceability: an unlinked delivery cannot appear in your Yield Tracker, Nutrition or any other analysis.

- Step 01:** Navigate to Your Data, then Data Linkages. Each row shows the Entity, the data Type (for example Yield or Lab Result), the Import Name given by the provider, the Date, the Facility / Origin and the current Status. Use the search box and the “All Entities” and “All Types” filters to find the delivery you want.



- Step 02:** Click “Link Data” on the row. A panel opens confirming that the data was collected automatically from the provider and is ready to be imported, showing the delivery’s Data Reference No and Date.
- Step 03:** Under “Assign and link data”, Allocation 1 asks you to select the Entity, Farm, Block and Planting the delivery belongs to, and the Percentage of this planting (default 100%). **Note:** Link the delivery to the correct planting before importing allocations cannot be changed once an import has completed.
- Step 04:** If one delivery covers more than one block or planting (for example a mixed load delivered to the processor), click “Add Another Allocation” and split the delivery by percentage across the plantings involved. These percentages determine how the kilograms are apportioned in every calculation that reads them, including the MacScore, so take care that they reflect reality.
- Step 05:** Click “Import Data”. The four-step import wizard runs (Step 1 File Upload, Step 2 Review, Step 3 Run Import, Step 4 Complete) — review the changes before proceeding, exactly as with a spreadsheet import.

Data Centre

Templates & Data ImportsManage LinksData Linkages

Data Imports & Linking

All data received from linked service providers can be viewed and imported here.

All Entities

Entity	Type	Import Name	Date
	Activities		15:52, 10 Feb 2026
	Lab Result	AAA-001-4999 - L 2024 Sample 1	09:36, 8 May 2024
	Yield		08:32, 26 Mar 2023
	Yield		13:27, 4 May 2023
	Block Information		17:13, 20 Mar 2026
	Activities		15:52, 10 Feb 2026
	Activities		15:52, 10 Feb 2026
	Lab Result		00:00, 1 Dec 2025
	Lab Result	AAA-003-7506 - Test Sample 2	14:10, 28 Aug 2025
	Yield		15:11, 11 May 2023

990 row(s)Rows per page

Link Data

This data has been automatically collected from Labserve and is ready to be imported. Assign this data to the farms and blocks to which it belongs, then click Import to start the import process.

Data Reference No

AAA-001-4999 - L 2024 Sample 1

Date

09:36, Wednesday 8 May 2024

Assign and link data

Allocation 1

Entity

Maluma Boerdery (Pty) Ltd

Farm

Make a selection

Block

Make a selection

Planting

Make a selection

Percentage of this planting

The Status column tracks each delivery through Ready to Import, Queued, Importing, Complete, Failed or Cancelled. If you want to ignore or dismiss an import, use the “Discard Import” right at the bottom of the “Link Data” sheet — a discarded import will not be fetched again on the provider’s next daily cycle unless it is deleted fully.

Harvest Date

Select a date

Import Data

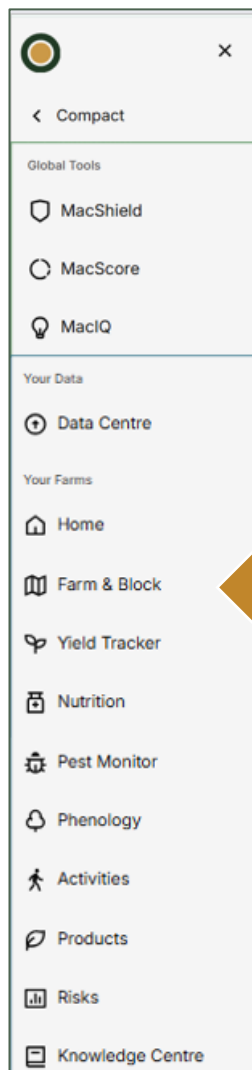
Cancel

Discard Import

8.3 Your Farms

8.3.1 How to access Your Farms

The Your Farms section is accessible from the main navigation sidebar. This is the main hub for managing your farm information. You can view and edit the details of your farms, blocks and plantings here. Each section deals with a different aspect of your growing operations and allows you to see your current and historical data (if provided) and forecast certain aspects of your operations based on the information you have provided.



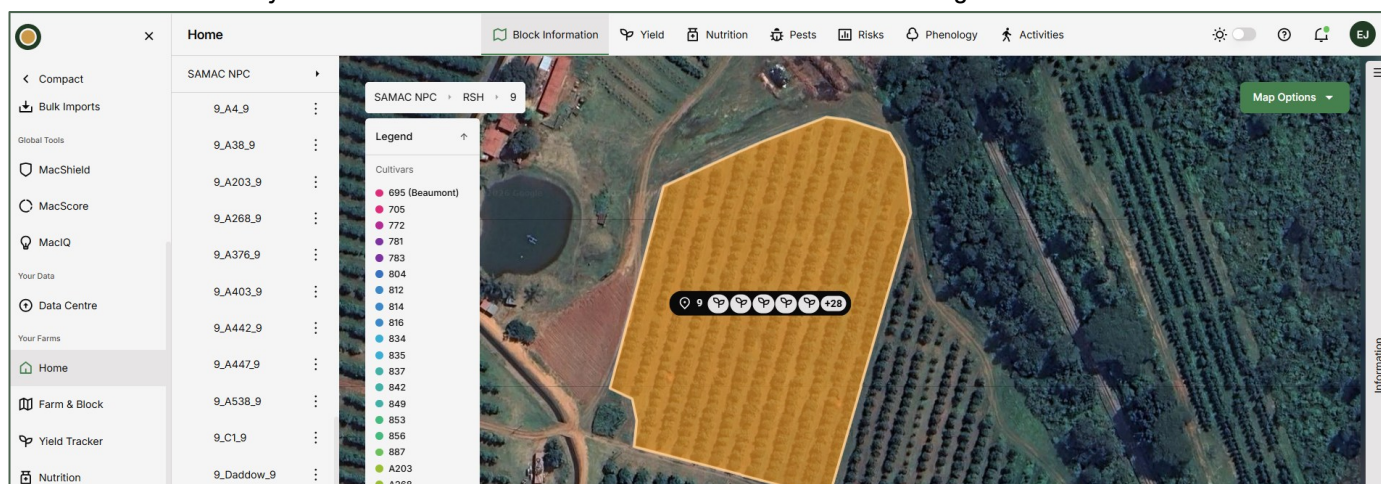
Based on the specific user rights, users can access the SAMAC Integrator Home page, Farm & Block information, the Yield Tracker, Nutrition, Pest Monitor, Phenology, Activities, Products, and Risks associated with the selected Entity, Farm, Block and Planting.

8.4 Home Page

8.4.1 Entity, Farm and Block Selectors

The Entity, Farm and Block Selectors in the left hand column allow users to navigate to the desired Entity, Farm or Blocks within their user account(s). The selected Entity determines the Farm and Block information displayed. All dashboards, reports, analyses, and maps update automatically based on the currently selected Entity. Users should always verify that the correct Entity, Farm and Block have been selected before entering data or interpreting outputs.

The Information panel on the right provides deeper insight into the chosen Block, enabling you to track and monitor current events across your Farms & Blocks. An overview of the blocks and tree ages are summarized here.



8.4.2 Block Information

Block overlays display important information directly on the map interface. These overlays provide contextual and visual information that are colour coded. Site Suitability Overlays are provided. These were determined by the interaction of key environmental and climatic factors that influence crop performance:

1. Elevation bands,
2. Climate zones,
3. Heat unit suitability,
4. Frost risk, and,
5. Overall site suitability.

The Map Options allow you to Download a KML File for the farm blocks you are viewing.

You may also visit the UNE portal - The University of New England's South African National Map of Orchards, a dataset that maps all orchards in South Africa larger than 1 hectare.

8.4.3 Yield

The Yield view shows a colour-coded ranked yield per block, measured in kg DNIS per tree. This allows you to view basic production and performance information across your Farms and Blocks. The Information panel provides deeper

insight into your yields per Farm for any chosen Entity enabling you to track and monitor Yields across your Farms & Blocks.

8.4.4 Nutrition

Monitor the Soil, Leaf and Sap analysis result status across your Farms and Blocks. The Information panel provides deeper insight into your Farms for any chosen Entity enabling you to track and monitor Nutrition across your Farms & Blocks.

8.4.5 Pests

Pest Counts are displayed within the Pest View from your recent scouting activities. Signals convey important and pertinent information relating to the pests on your Farm.

8.4.6 Risks

The Risk View provides you with a broad, weighted average of the risks that your Farm is facing currently. This view enables you to make quick decisions and to take action to mitigate the risks.

8.4.7 Phenology

The Phenology view focuses on phenological data (Flower, Nut, and Tree Stages) across your Farms & Blocks. Each Block colour is set to the most prevalent Phenological Stage of the Cultivars within any given Block determined by your scouting data.

8.4.8 Activities

Day-to-day farming tasks are shown as hours of labour. More information on the wages, and hours per activity is given in the information panel on the right hand side.

8.5 Farm & Block

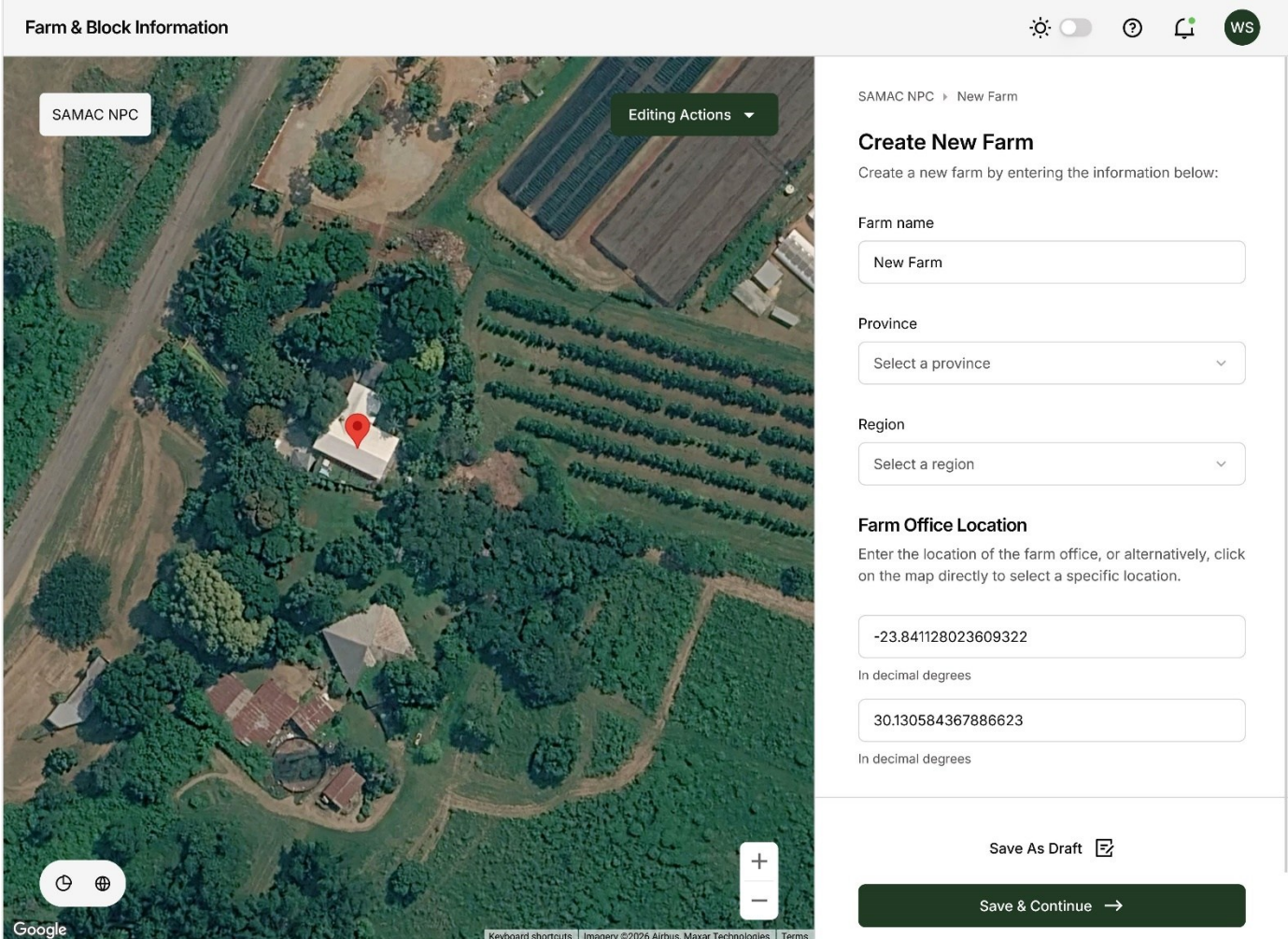
All analytical outputs generated by the SAMAC Integrator depend on the quality and accuracy of the information in the platform. Incorrect block boundaries, cultivar information, tree counts, or planting dates may result in inaccurate calculations, misleading benchmarks, and incorrect recommendations. Users should therefore ensure that all farm and block information remains current and accurate at all times.

The Farm & Block menu allows you to Import and Manage your Farm, Block & Planting data across your selected Entity. Switch to the Map View to get an aerial view of your selected farm or switch to the List View which provides details about your Plantings. Interacting with the blocks in the List View allows you to View or Export the Planting Information.

The Add New section allows users to Add a new Farm, Add a new Block, Add a new Planting or navigate to the Data Centre for data imports or connections. Each farm should be configured with accurate location information.

Adding a new Farm:

- **Step 01:** Open Your Farms, then Farm & Block, and click “Add New”, then “Add new farm”.
- **Step 02:** Enter the Farm name and select the Province and Region. The region determines which industry benchmarks your farm is compared against, so choose it accurately.
- **Step 03:** Under Farm Office Location, enter the Latitude and Longitude of the farm office, or click the location directly on the map. Save the farm.



Farm & Block Information

SAMAC NPC > New Farm

Create New Farm

Create a new farm by entering the information below:

Farm name
New Farm

Province
Select a province

Region
Select a region

Farm Office Location
Enter the location of the farm office, or alternatively, click on the map directly to select a specific location.

-23.841128023609322
In decimal degrees

30.130584367886623
In decimal degrees

Save As Draft 

Save & Continue →

Renaming a Farm or Block: open the item for editing and change its name. In the sidebar farm tree, click the “:” menu next to the farm or block and choose “Edit Farm” or “Edit Block”; alternatively, click a block on the Map View to open it. Change the Name field and click Save. The new name applies everywhere immediately — but remember that spreadsheet and KML imports match on names, so update your import templates and KML files to use the new name too.

Adding a new Block:

- **Step 01:** With the correct farm selected, click “Add New”, then “Add new block”.
- **Step 02:** Enter the Block name. Use the same name as in your spreadsheets and KML files — imports match blocks by name.
- **Step 03:** Under Map Area, drag the highlighted polygon on the map to trace the block’s boundary.
 1. Click and drag the white dots to move the vertexes of the polygon to match your farm.

- Click and drag on the grey dots between each vertex to add a new vertex at that position. That way you can add as many vertexes as you need.
- After you've dragged one of the white dots / vertexes, a small toolbar pops up which allows you to either Undo the move you just made or Delete the vertex entirely.



The Hectares field is calculated automatically from the drawn area (and can be adjusted if needed). Save the block.

- Tip:** If you get lost, click the “Editing Actions” dropdown and choose “Recentre Map” to move it back to your farm. You can also completely reset the polygon if you need to (this will revert the polygon back to its last saved shape when editing a block, or back to the default square when adding a new block).
- Tip:** if your blocks are already mapped in a KML file (for example drawn in Google Earth), you can import all block boundaries at once — choose “Import data” from the Add New menu instead of drawing each block by hand.

Farm & Block Information

SAMAC NPC > RSH

Editing Actions

SAMAC NPC > RSH > New Block

Create New Block

Create a new block by entering the information below:

Block name

New Block

Hectares

3.55

Hectares

Map Area

Drag the highlighted polygon on the map to define the area covered by this block.

Save As Draft

Save & Continue

Cancel

58

Adding a new Planting: a planting describes the trees inside a block: one cultivar planted at one time. Create a separate planting for each cultivar, or for each planting date, within a block.

- **Step 01:** Click “Add New”, then “Add new planting” — or open a block for editing and click “Create New Planting” under its Plantings list.
- **Step 02:** Enter the Planting name and select the Cultivar and Irrigation Type (with the Irrigation Rate in litres per tree per hour, if known), plus the Rootstock and Nursery details.
- **Step 03:** Enter the Planting Date. This is the orchard establishment date: it drives the tree age used by the MacScore and the yield forecast, so it must be the real date the trees went into the ground (see Section 2, Data Integrity).
- **Step 04:** Under Planting Density, enter the Row Spacing and In-Row Tree Spacing in metres — the trees per hectare figure is calculated for you — then enter either the Number of Trees or the Hectares of the planting.
- **Step 05:** Optionally record the Topography: Slope, Planting Direction, Aspect, Altitude and Soil Type. The altitude improves the accuracy of your block’s weather data. Save the planting.
- **Tip:** if a planting is removed or replaced later, set its Retired Date rather than deleting it, so that its history remains intact.

SAMAC NPC > RSH > 9 > New Planting

Create New Planting

Create a new planting by entering the information below:

Planting name

New Planting

Cultivar

Select a cultivar

Irrigation Type

Select an irrigation type

Irrigation Rate

0

Litres per tree per hour

Rootstock

Select a rootstock

Rootstock Type

Select a rootstock type

Nursery

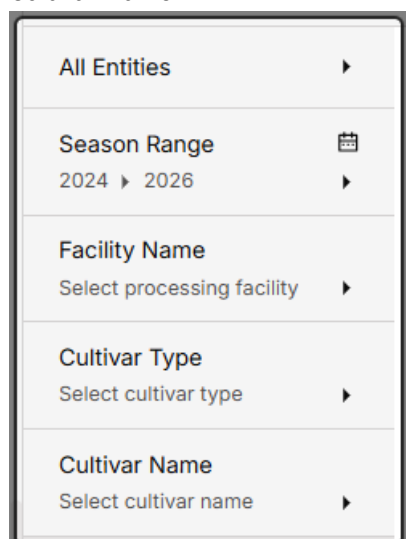
Nursery of origin

Yield Tracker

The Yield & Quality Tracker provides a window into the Production and Performance of your Farms.

Track and gather insights for your Yield & Quality through Production, Performance, Unsound Kernel Stats, Styles and Forecast.

Use the sidebar filter to view yield and quality statistics by Entity, Season Range, Facility Name, Cultivar Type, and Cultivar Name.



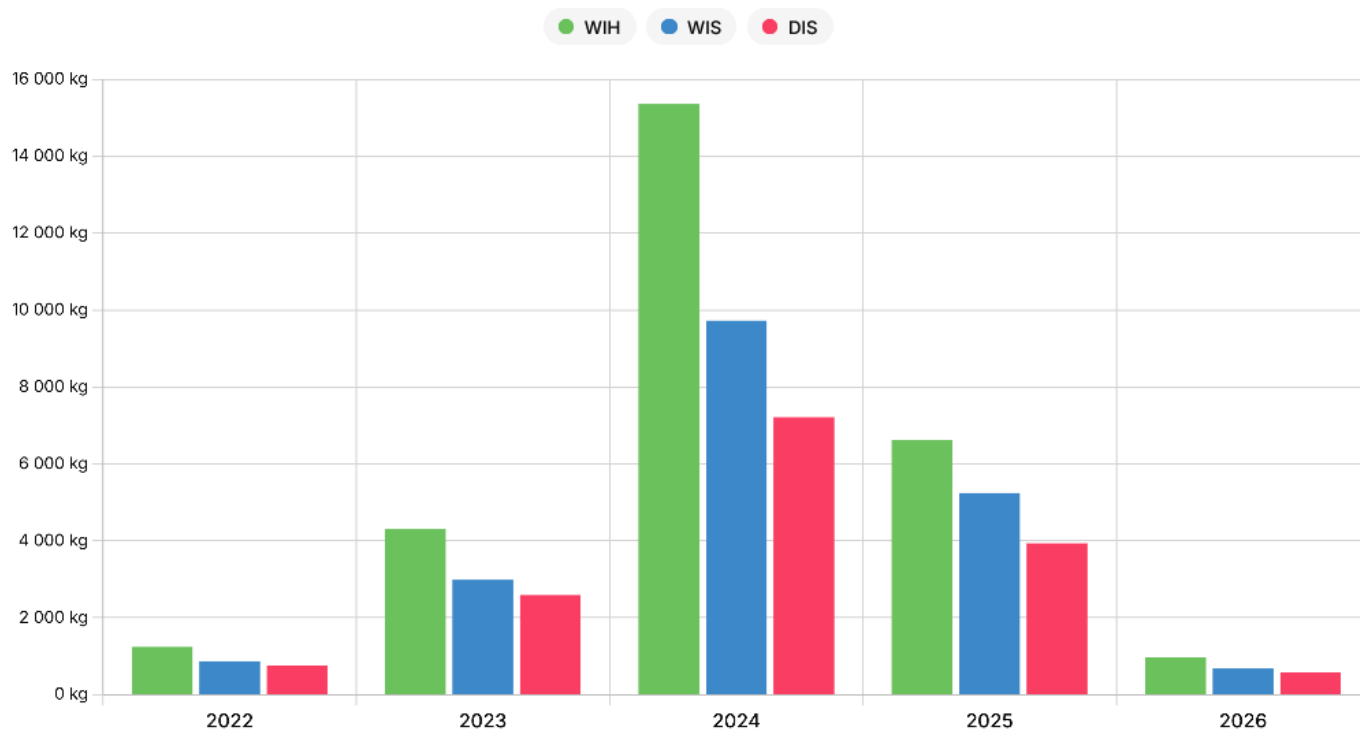
Data Options include the following options: import or export Yield & Quality data, connect Yield & Quality data or manually add Yield & Quality data. The Industry Context right-hand side slider bar is a benchmarking tool which provides a glimpse into how your peers and the industry are performing against your Farms.

The Yield Tracker module is designed to capture, store, and analyse yield and quality information at farm and block level. The module provides growers with a structured approach to recording harvest results and enables direct comparison between seasons, cultivars, production regions, and industry benchmarks. This important mass balance and accurate yield data is fundamental to understanding orchard performance. Users are encouraged to capture yield information as soon as harvest and processing results become available.

Yield and quality information can also be connected through the Data Centre via API integration. Yield information can be captured or linked at farm, block and planting level. Several key performance indicators are displayed throughout the Yield tracker.

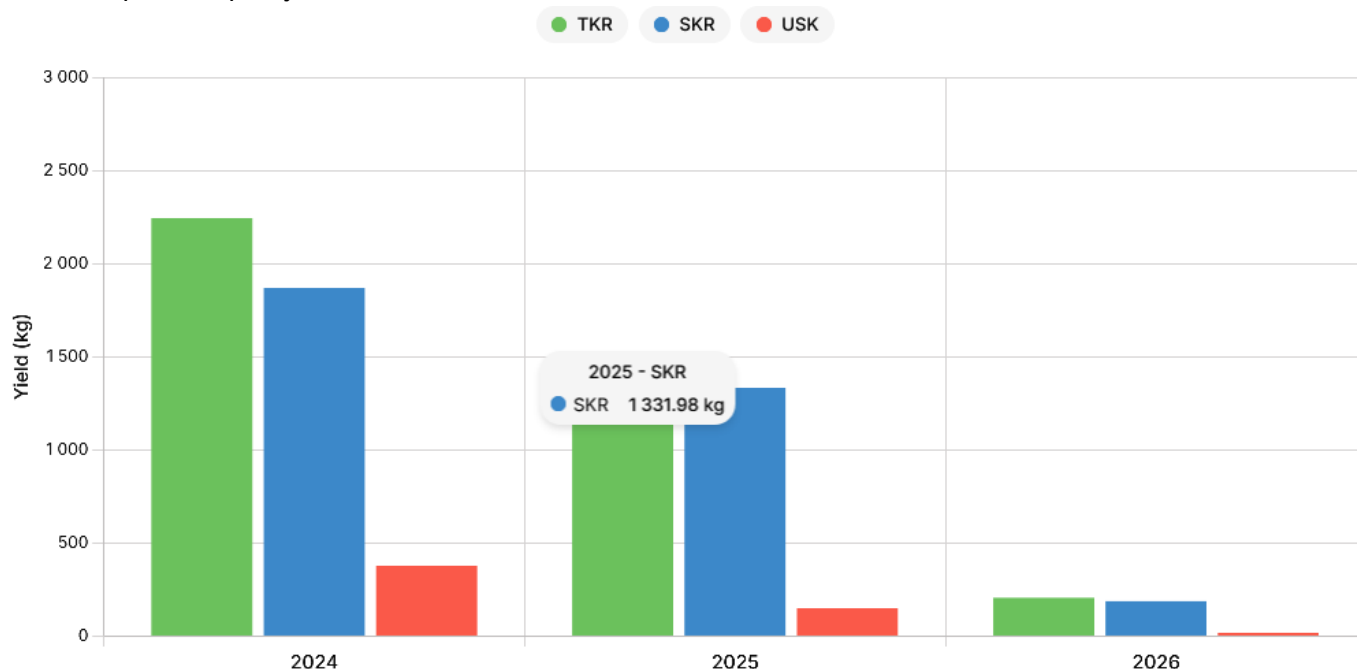
Production:

- Wet Nut-in-Husk (WIH) - represents the harvested nut mass before dehusking
- Wet Nut-in-Shell (WIS) - represents the harvested nut mass after dehusking
- Dry Nut-in-Shell (DNIS) - represents the mass of dried nuts delivered after moisture removal to the level of 1.5 % and serves as the primary measure of productivity as an industry standard, and for comparison in the MacScore.



Performance:

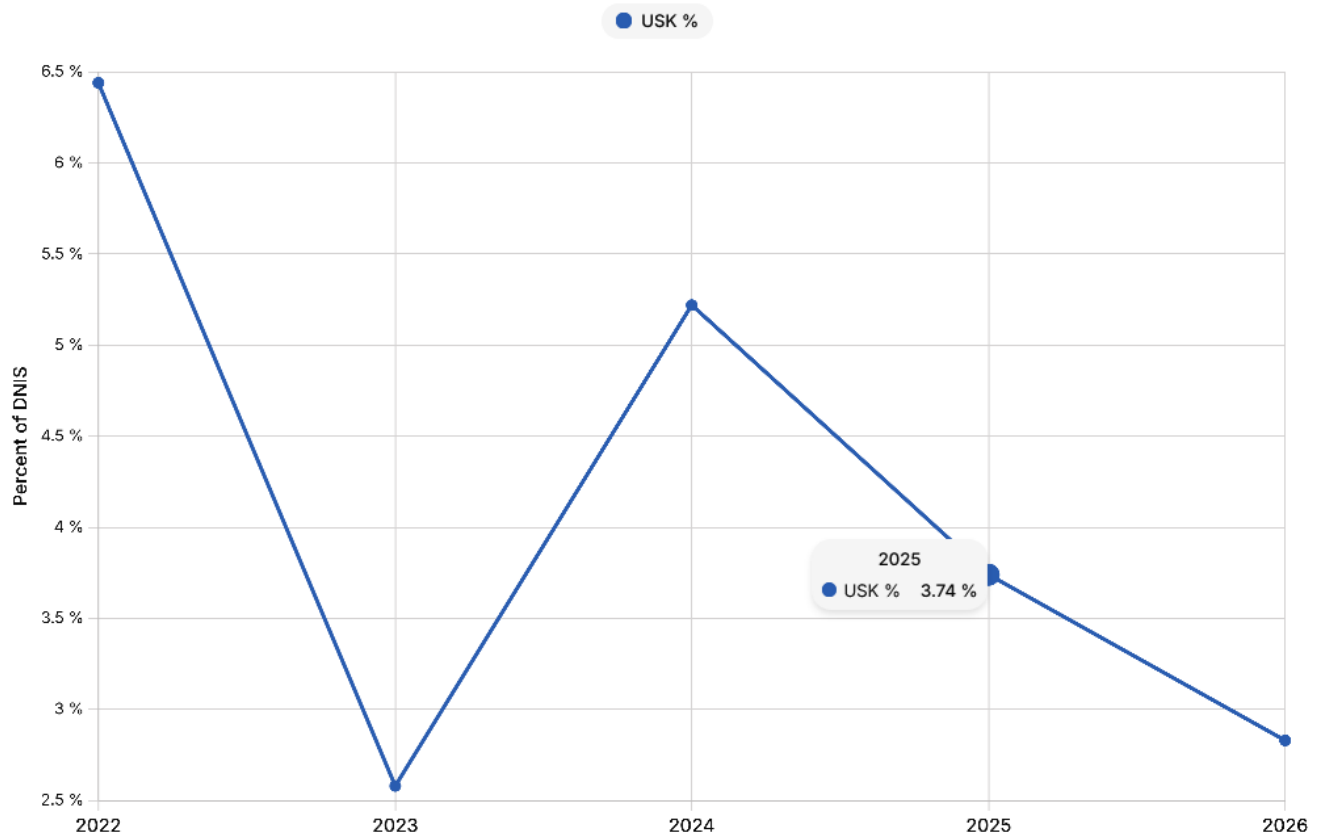
- Total Kernel Recovery (TKR) represents the percentage (%) of recoverable kernel obtained from DNIS and serves as one of the most important quality indicators in the industry. Sound kernel (SK), also expressed as a % of DNIS, represents the percentage of marketable kernel produced after processing, an important assessor of product quality.



USK Stats:

- Unusable kernel total and contributing factors that resulted in unsound kernel (USK) expressed as a % of DNIS. Typically, these would include stink bug, immature, mould, onion ring and other loss factors. The losses can be tracked over seasons and compared to the Top 20 yield producers' losses, your region, your province and the industry.

🔍 USK % Over Time ⓘ 🏠 Contributors ⓘ



Style:

Kernel sizes expressed as the % of DNIS and % of the TKR tracked over time.

Style 0: Min 95% wholes, > 20 mm in size.

Style 1: Min 90% wholes, 16-20 mm in size.

Style S: Min 90% wholes, 13-18 mm in size.

Style 3: Min 15% wholes, > 13 mm in size.

Style 4: Min 80% halves, > 13 mm in size.

Style 5: Pieces, 8-12 mm in size.

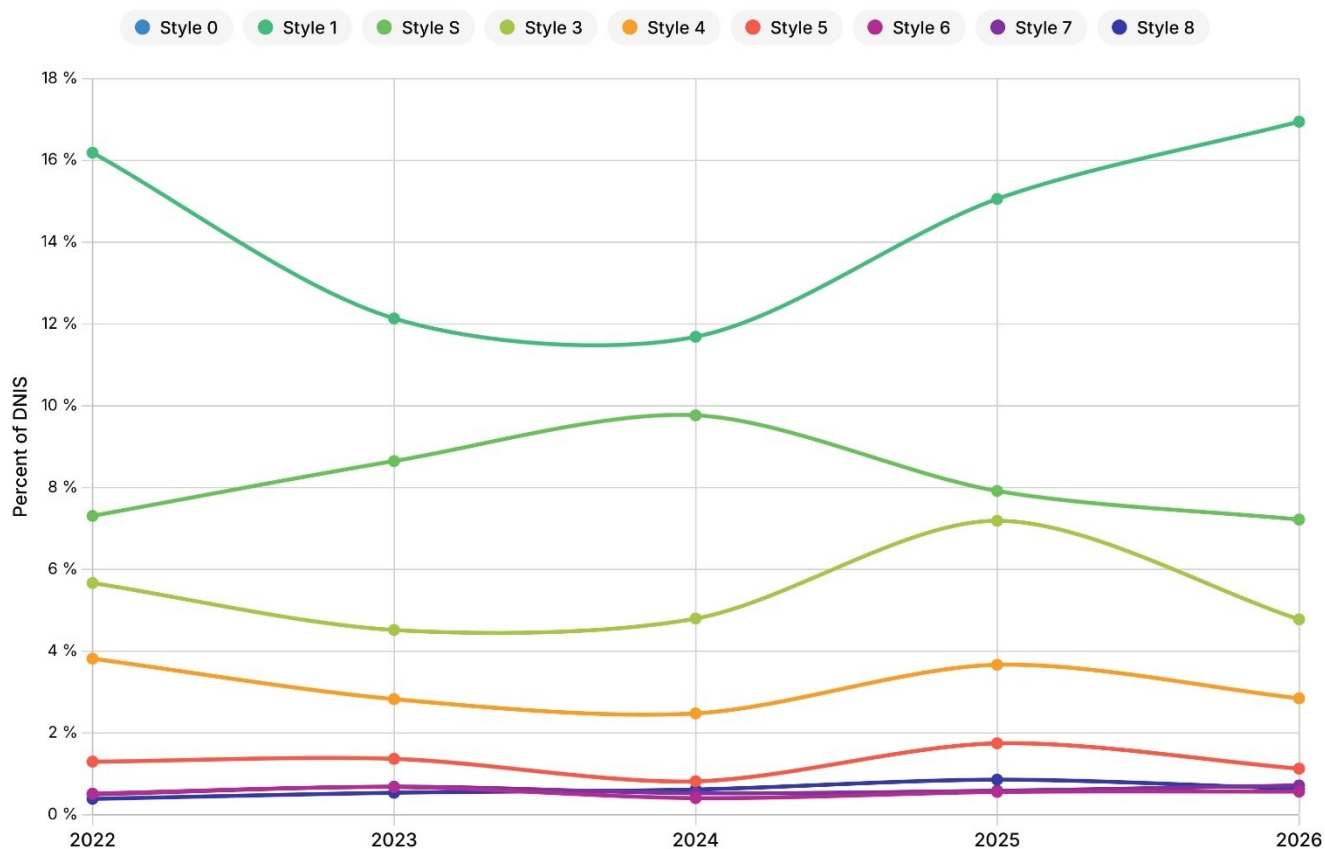
Style 6: Pieces, 5-9 mm in size.

Style 7: Pieces, 3-6 mm in size.

Style 8: Fine pieces and meal, < 3 mm in size.

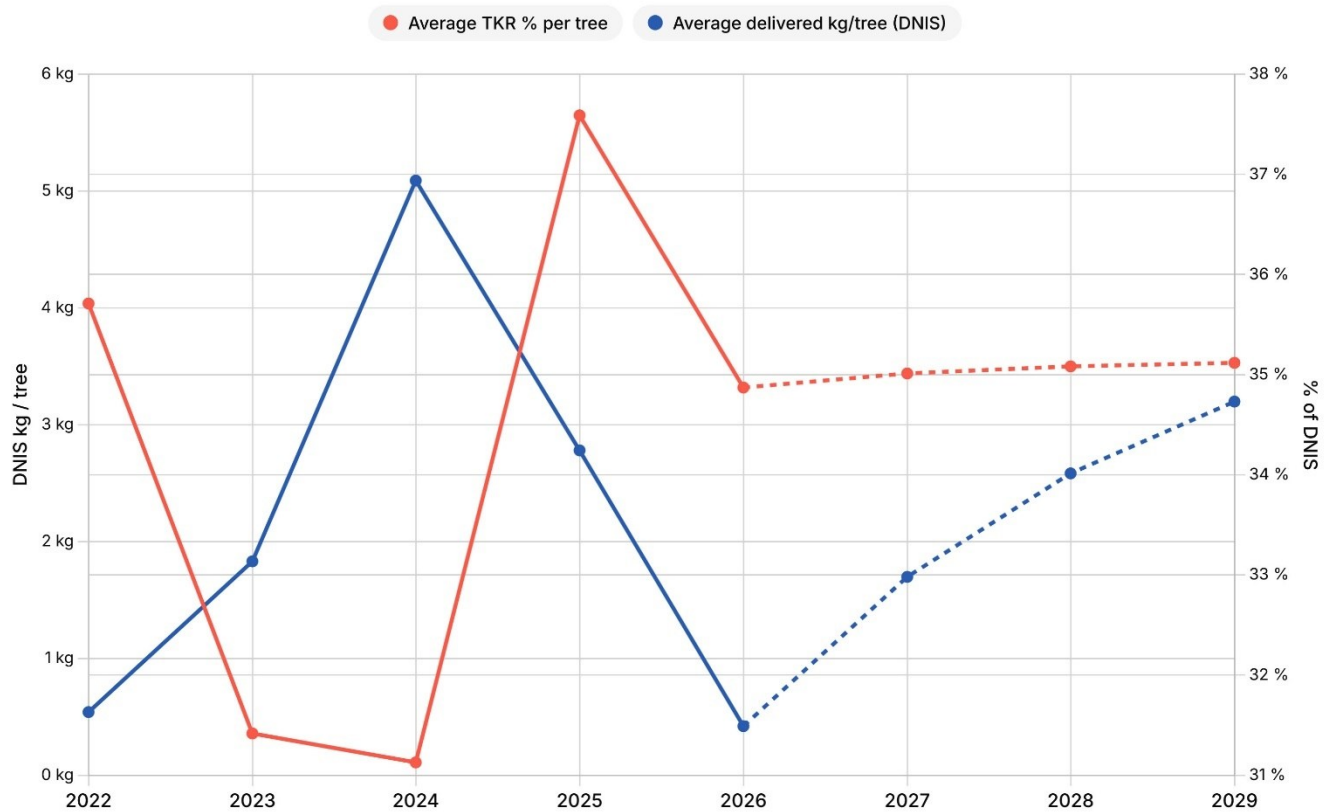
Users can hover over the legend to see definitions and click legend items to show or hide graph lines.

Style % Over Time ⓘ Data



Forecast:

Forecasts are based on historical information provided to model the age-related yield in kg DNIS per tree. The relative % per tree and actual kilograms per tree is given.

 Crop Over Time 

Note: projection based on recent MacScore performance at an implied mean tree age of 8 years. Recovery is projected as reverting to this orchard's recent norm.

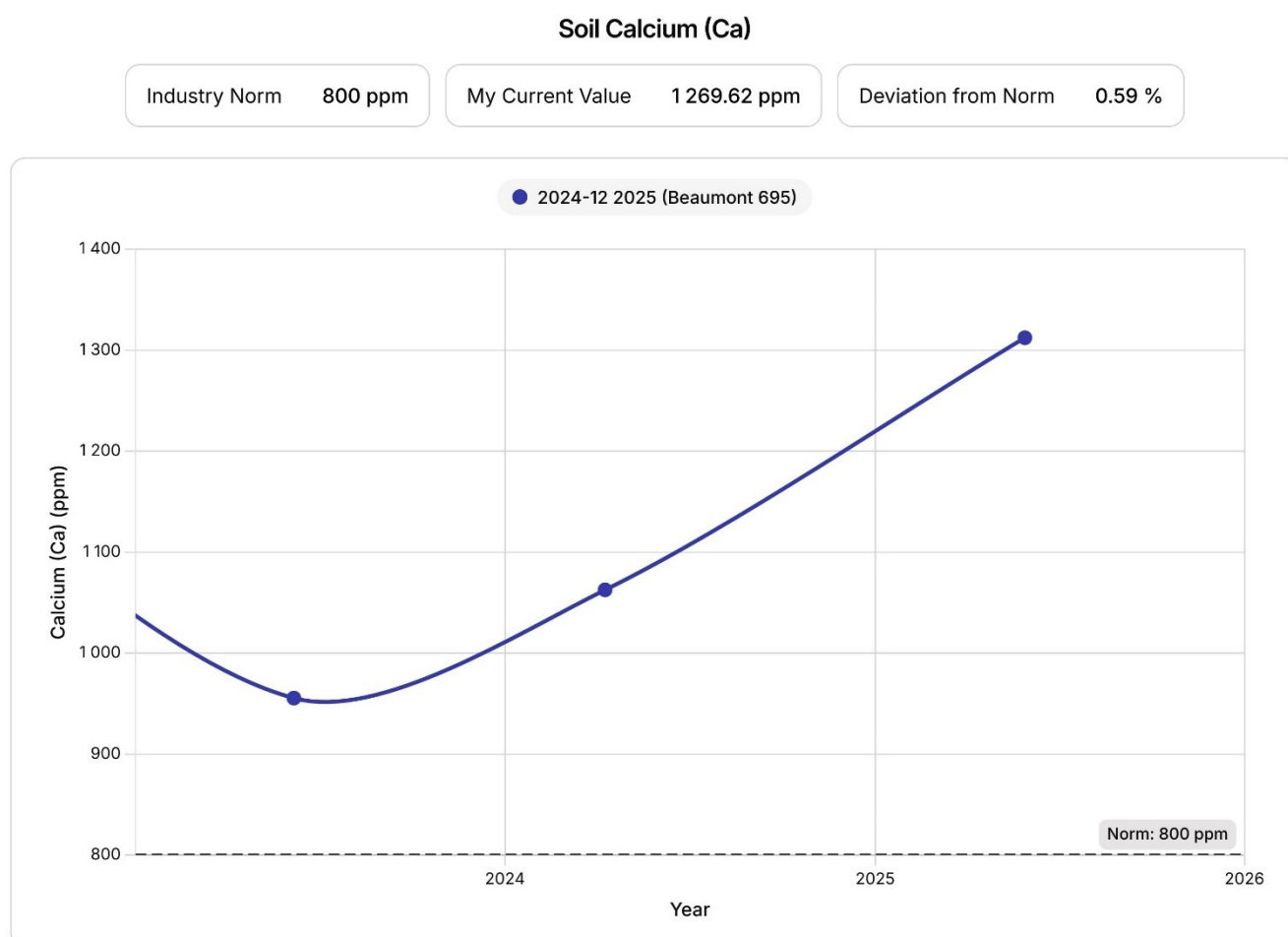
8.6 Nutrition

Gain insights from your laboratory sample results, including soil, leaf, and sap nutrient levels.

8.6.1 Purpose of the Nutrition Module

The Nutrition module provides a centralised system for storing, interpreting, and analysing soil, leaf, and plant sap analysis results. The purpose of the module is to transform laboratory data into practical management information that supports balanced nutrition and improved production outcomes. By integrating nutritional information with yield and quality data, users can evaluate the effectiveness of fertilisation programmes and identify opportunities for improvement.

The data must be imported using the Data Centre and import template. Results are interpreted against the Industry Norm by default. You may override the Norm with the Sidebar Filter.



8.7 Pest Monitor

This section allows you to see the number of Pests detected within your Plantings over time. Once you have added Pest scouting information and Crop Protection Activities, you will be able to see the impact on your Plantings here.

You may filter by Pest within the Sidebar Filter to view information around a specific Pest.

Import, Export, Connect or Add Pest Data. Pest and disease monitoring thresholds can be adjusted to align with what is economically significant within specific production contexts. You may also add new Crop Protection Activities from this menu.

The Graph provides a graphic overview according to the filtered Entity / Farm / Block / Planting selections.

8.7.1 Recording Pest Information

Users can use the Data Options to capture averaged observation outcomes from routine scouting activities per block and planting directly within the platform or through the Data Centre. Each observation should be linked to the correct date, farm, block, planting, pest species, and pest life stage. Consistent scouting methods, following the standard operating procedure of the industry, should be used to ensure that data remain comparable across regions, farms, blocks and seasons. Regular monitoring increases the reliability of trend analyses and risk predictions.

8.7.2 Interpreting Pest Signals

The platform automatically analyses scouting information and generates pest signals based on observed averages and set thresholds that represents a % of the default threshold value to trigger a signal (100 % is the default threshold value). The tooltips ⓘ for each signal describe its range and calculation. Signals therefore provide an indication of current pest risks and may identify areas requiring intervention. The objective of the signals is not to replace professional judgement but to provide additional decision-support information.

Pest information should be evaluated together with environmental conditions, crop growth stage, intervention history, and economic thresholds. Integrated interpretation of these factors supports more effective and sustainable pest management decisions.

Users are encouraged to maintain scouting records throughout the season to maximise the value of the analytical outputs. Navigate to the Pest Monitor module and record scouting data according to the standard operating procedure of the industry.

Once data is captured, review the graphical outputs showing pest trends over time. Identify whether thresholds have been exceeded. Overlayed intervention events enable easier evaluations of the effectiveness of control. Use this information to refine timing and selection of future interventions.

8.8 Phenology

Phenology refers to the study and monitoring of crop growth and development stages throughout the season. The Phenology module enables users to record and evaluate key growth stages throughout the macadamia season. Understanding crop development is essential for optimising the timing of management interventions.

Track and monitor the Phenology of your Plantings across your Farms using your Phenology Timelines.

2025

Explore ▾



The Phenological Timeline provides a visual overview of the different stages of your trees' phenology. Expand the Timeline and select a stage to view each stage's related information. Access useful and relevant resources and articles related to each stage under the expanded phenological timeline.

The phenology stages are recorded as:

Flower Development Stages



Flower Stage 1



Flower Stage 2



Flower Stage 3



Flower Stage 4

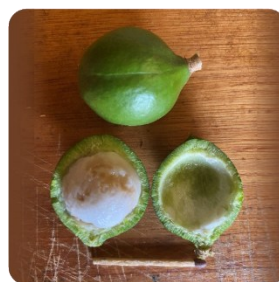
Nut Development Stages



Nut Stage A



Nut Stage B

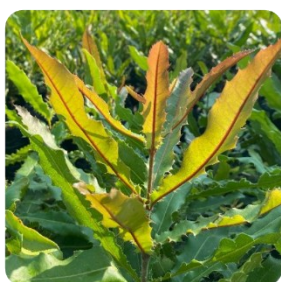


Nut Stage C

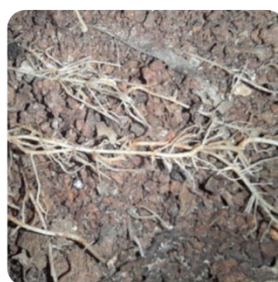


Nut Stage D

Tree Development Stages



Leaf Flush



Root Flush

Photos: Andrew Sheard, Mayo Macs Macadamias

8.9 Irrigation

8.9.1 Purpose of the Irrigation Module

The Irrigation module serves as the watering and irrigation record-keeping system of the SAMAC Integrator. The module enables users to record all watering events (be they rainfall or irrigation) within each production block and planting and creates a traceability record.

Accurate watering records support water-use efficiency, irrigation scheduling, cost management, and compliance with water-use licensing, certification and audit requirements. They also strengthen the platform's analytical outputs: watering records are interpreted alongside rainfall, atmospheric water demand (ET0) and vapour pressure deficit from your block's weather data, helping you evaluate whether water applied matched what the crop actually needed — and they feed the Industry Context comparisons, where irrigated and dryland plantings are benchmarked separately.

8.9.2 Recording Irrigation Events

Irrigation events and rainfall can be recorded within the system seamlessly. Submit records through the Data Centre by template uploads, Data Connections or Manually through the Data Options function to manage and review your watering events.

8.10 Activities

8.10.1 Purpose of the Activities Module

The Activities module serves as the operational record-keeping system of the SAMAC Integrator. The module enables users to record all management activities performed within each production block and planting and creates a traceability record. Accurate activity records support compliance requirements, audit readiness, cost management, and operational planning.

8.10.2 Recording Farm Activities

Activities such as pruning, mulching, slashing, harvesting, and maintenance amongst others can be recorded within the system seamlessly. Keep records through the Data Centre by uploads, Data Connections or Manually through the Data Options function to manage and review day-to-day farming tasks, activity hours and man hours.

Home > Multiple Farms > Multiple Blocks
Filter...
Columns
Data Options

Overview
Knowledge Centre

Planting	Activity	Start Date	End Date	Employees	Total Hours	Man Hours	Avg. Hourly Rate
2025-01 2025 (816)	Harvest	00:00, 27 Mar 2026	14:48, 27 Mar 2026	66	22.1 h	477.1 h	R 29.35
Employee Type				Employees	Gender	Hours	Rate per Hour
Permanent Staff				18	Both	8.4 h	R 30.47
Temporary Staff				25	Male	5.4 h	R 29.79
Temporary Staff				23	Female	8.3 h	R 27.78
2024-12 2025 (Macadamia 695)	Supervision	00:00, 26 Mar 2026	14:48, 27 Mar 2026	3	8.9 h	26.7 h	R 46.59
Employee Type				Employees	Gender	Hours	Rate per Hour
Temporary Staff				3	Male	8.9 h	R 46.59
2025-01 2025 (842)	Irrigation	00:00, 25 Mar 2026	14:48, 27 Mar 2026	2	8.1 h	16.2 h	R 26.51

548 row(s)
Rows per page 10 Page 1 of 55

8.11 Products

8.11.1 Purpose of the Products Module

The Products module serves as the intervention record-keeping system that enables users to provide a sound record within each production block with full traceability. Accurate plant protection product application records support compliance requirements, audit readiness, cost management, and operational planning.

8.11.2 Recording Product Applications

Products are captured per target through filters provided by the platform. To record an application, select the relevant farm and block, then input the application date, product used, and rate. The system will guide you to apply the correct Tree Row Volume (TRV), ensuring that spray volumes are aligned with canopy requirements. Save the record once complete.

8.11.3 Traceability and Compliance

This module is important in the traceability of pest control actions performed throughout the season. These records support certification programmes, processor requirements, export compliance, and internal quality assurance processes.

8.12 Risks

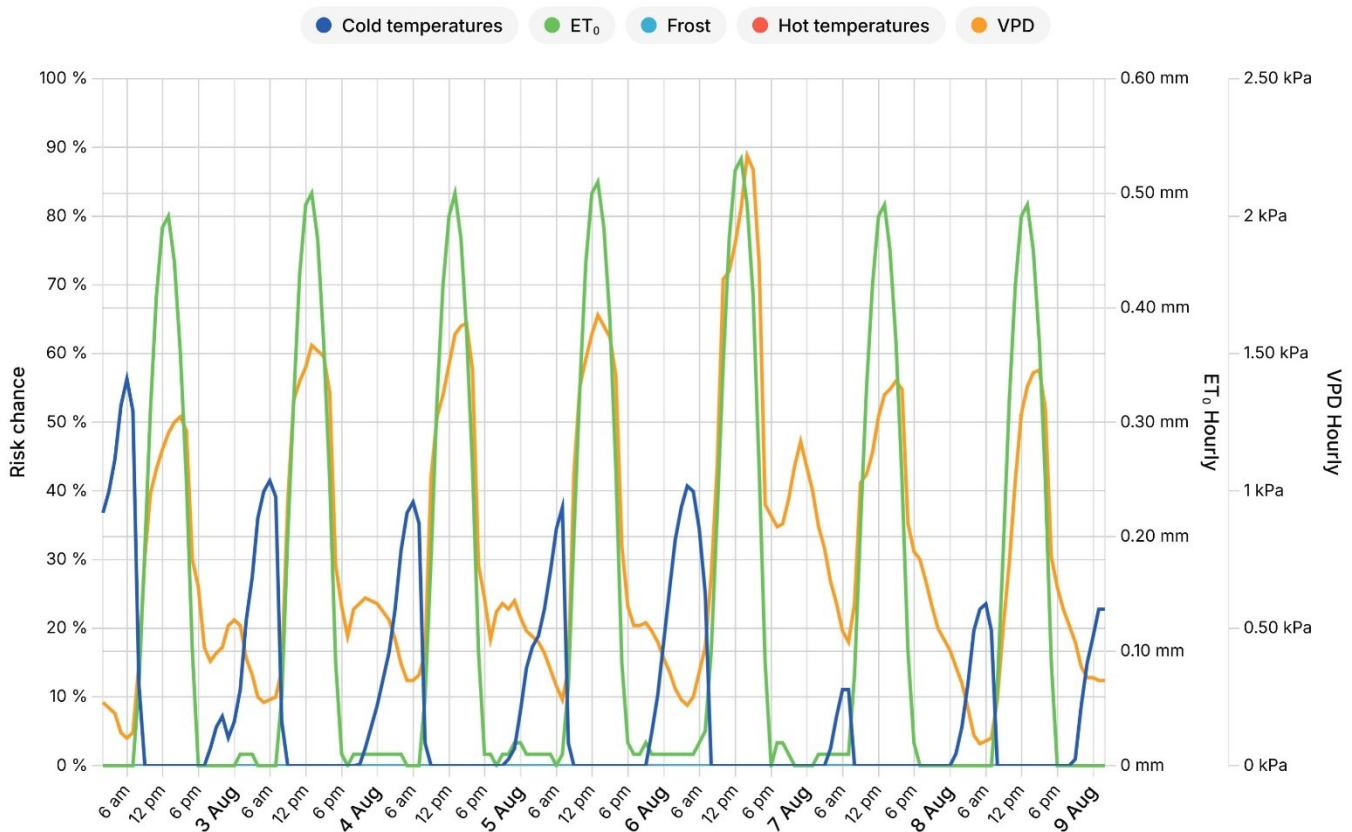
Risk view has been customized for interpretation in context of macadamia yield and quality determining factors. A graphic risks view provides an overview of macadamia risks according to the filtered Entity / Farm / Block / Planting selections.

Note that the risks module depends on the capture of information of most of the previous modules in MacIQ.

Risks are calculated from your farm's hourly weather data (including forecast weather up to 14 days ahead) and your captured scouting records, and are graded Low, Medium or High against research-derived thresholds. Where you have adjusted a risk threshold, the grading boundaries scale proportionally around your chosen value. Section 2 (Data Integrity) explains the calculation methods in more detail.

Review risk indicators related to pests, climate, phenology and production. Interpret the graphical outputs and thresholds to determine whether intervention is required. Use this module proactively to identify risks before they result in losses.

The Risk views: the Risks module has four views: Overview, Pests & Diseases, Weather and Forecast. Overview combines all risk categories in one graph; Weather shows the weather and spraying-condition risks; Pests & Diseases shows the modelled pest and disease risks; and Forecast lets you model a chosen risk forward from a chosen date. Each view has a Graph tab and a Knowledge Centre tab with articles relevant to the risks shown, plus the Industry Context panel on the right for comparison against your region, province and the industry.



Reading the graphs: each line on the graph is one risk, plotted over time. The date range defaults to the past month plus the forecast days ahead and can be changed in the sidebar. Risks that represent a probability (for example Frost or Hot Temperature) are plotted against the “Risk chance” axis from 0–100%: the higher the line, the more likely the event. Risks that are measured values (for example Wind or Rainfall) are plotted against their own axes in their own units. Click a risk’s name in the legend to show or hide its line, and hover over a legend chip to see a description of that risk and how it is calculated. Hovering over the graph reads all lines at the same moment in time, so conditions can be compared at a glance.

How thresholds shape what you see: the lines show the modelled values; the thresholds decide how they are flagged. A risk whose current or forecast value crosses into the Medium or High band raises a signal, colours the Home Risk view, and colours the corresponding cells in the dashboard’s 7-day risk forecast grid — green (low), amber (moderate) and red (high). Where you have set your own threshold, all these displays use your value instead of the default.

Setting your own thresholds: open Data Options, then Climate Thresholds or Pest Thresholds. Each risk shows an input with the research default as its placeholder; enter the value at which the risk should be flagged as high for your operation. Click the tooltip ⓘ next to each threshold to see the exact methodology risk scale is based on. The Low and Medium boundaries scale proportionally around your value, and your settings apply immediately.

Add Thresholds


Set your custom risk thresholds
 Adjust the percentages below to choose when a risk is flagged as 'high'. If a risk exceeds your set limit, you'll see a warning on your dashboard.

Aphids ⓘ

60 %

Bark borer damage ⓘ

60 %

Blossom blight ⓘ

60 %

Bollworm ⓘ

60 %

Broadleaf weeds ⓘ

60 %

Coconut bug ⓘ

$$\text{Risk (\%)} = (\text{Observed Value} \div \text{Threshold}) \times 100$$

and a risk of 100% represents a Coconut bugs / branch count of 0.4 count/branch.

Interpreting the graphs — practical guidance: rising probability lines ahead of today are based on forecast weather and give you lead time to act. A climbing Frost line in the coming week is the cue to prepare frost protection; a high Wind or Rainfall line during a planned spray window is the cue to reschedule; sustained high VPD and ET0 lines signal

atmospheric water demand and rising irrigation need. Pest and disease lines rise when the climate favours the organism — read them together with your scouting results in the Pest Monitor: climate risk combined with rising counts is a strong intervention signal, while climate risk with clean scouting is a reason to scout again sooner. After an intervention, watch whether the risk lines and your counts subside — that is your feedback loop on whether the action worked.

Weather

Cold Temperature: Probability of cold (higher when hourly temperature is below 12.8 °C).

ET₀: This gives an indication of how much water the atmosphere is demanding in mm/hr. This factor, given for a flat grass surface, can be multiplied with your crop factor (usually based on phenology) and environmental factor to get a better sense of water demand.

Frost: Probability of frost (higher when minimum hourly temperature is below 1 °C).

Hot Temperature: Probability of heat (higher when hourly temperature is above 32 °C).

VPD: This gives an indication of how hard the atmosphere is pulling water from the plant (hourly kPa).

Wind: Hourly windspeed in km/h. High winds can disrupt spraying operations.

Relative Humidity: Hourly relative humidity in %. High relative humidity can pose a risk.

Rainfall: Hourly rainfall in mm. More than 1mm of rainfall can disrupt spraying operations.

Pests & Diseases

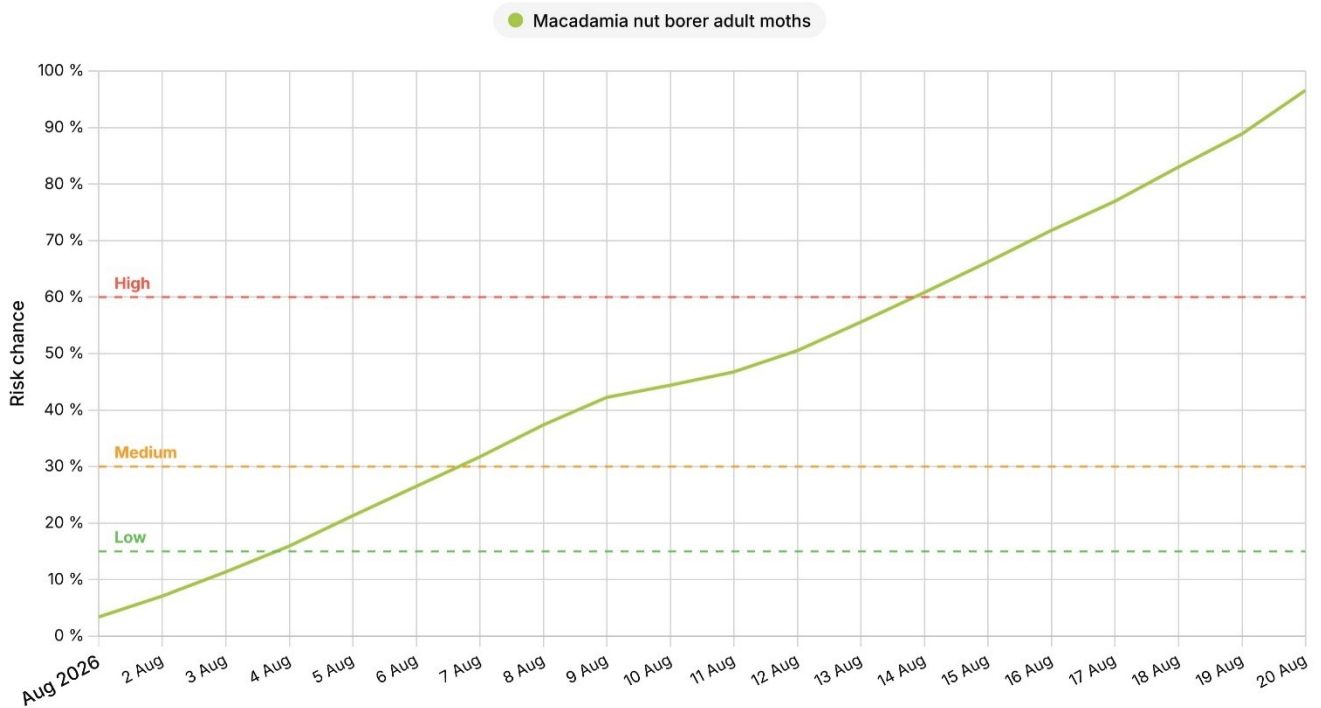
Based on the understanding of pest and disease biologies, these are modelled based on climate relevant to the filtered Entity, Farm, Block and Planting. For any risks to be identified here, the presence of pests needs to be captured in the Pest Monitor section first.

Models

In this section, you can run forecast models to predict the chance of certain risks occurring on your farms. Follow the steps below to get started:

1. Select a block from the sidebar.
2. Select a risk you would like to model from the sidebar.
3. Select the described date to model pest or disease progression from that date onward.

The forecast model draws a single line for the chosen risk from your chosen start date forward, using the forecast weather for your block's location. Choose the start date according to the guidance shown for the risk (for example the date of an observed infection event) — the model is only as meaningful as its starting point.

Macadamia nut borer adult moths starting from 1 Aug 2026 in block MB99.

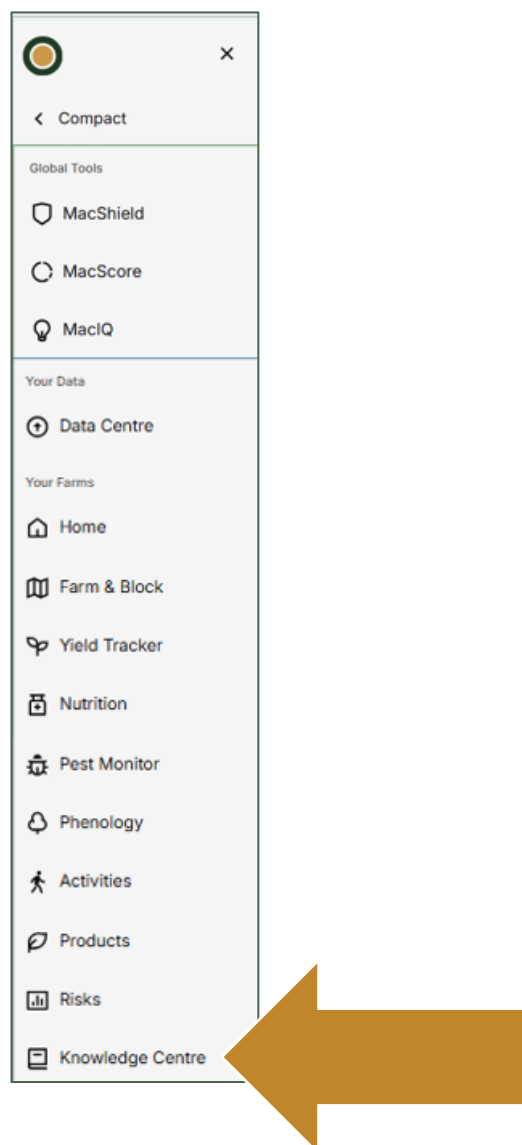
9.



MACGURU

9.1 How to access the Knowledge Centre

The Knowledge Centre is accessible from the main navigation sidebar, at the bottom. The Knowledge Centre is the main component of MacGuru. It provides a library of helpful resources including how-to guides, best practice tips and troubleshooting articles to help you get the most out of the SAMAC Integrator.



9.2 MacGuru Overview

MacGuru is the knowledge and learning component of the SAMAC Integrator. It provides users with access to industry expertise, research findings, technical guidance, training resources, and best-practice recommendations. The purpose of MacGuru is to bridge the gap between data and action by providing the scientific and technical context required to support informed decision-making. MacGuru serves as a central repository of validated industry knowledge and enables users to access current information relevant to macadamia production, quality management, pest control, nutrition, irrigation, compliance, and sustainability.

By combining research findings with practical production experience, MacGuru helps users convert information into improved management outcomes. The Knowledge Centre is the primary information repository within MacGuru. It provides users with access to a continuously expanding collection of technical documents, research publications, training materials, videos, articles, standard operating procedures, and industry resources.

The Knowledge Centre has been developed to ensure that users have easy access to credible and scientifically validated information when making production decisions.

9.3 MacGuru Links Knowledge to Farm Data

One of the unique strengths of the Knowledge Centre is its integration with the analytical components of the SAMAC Integrator. Where applicable, phenologies, analytical signals, risks, pest observations, nutritional insights, or production trends may trigger the appearance of supporting knowledge resources.

This allows users to get information required to easily find a solution or action plan relevant to the on-farm situation.

The result is a fully integrated decision-support environment where data, interpretation, and knowledge work together to improve management outcomes.

9.4 Benefits of Using the Knowledge Centre

The Knowledge Centre provides several important benefits to users. It improves access to reliable information, reduces dependence on fragmented information sources, supports consistent decision-making, and promotes the adoption of best practices throughout the industry.

The Knowledge Centre also supports training, continuous improvement, knowledge sharing, and professional development. By providing direct access to industry knowledge and research findings, the Knowledge Centre contributes to improved productivity, enhanced sustainability, and greater long-term competitiveness within the macadamia industry.

9.5 Future Development of the Knowledge Centre

The Knowledge Centre is designed as a living repository that will continue to expand over time. New research findings, technical documents, training materials, videos, industry updates, and best-practice resources will be added regularly to ensure that users have access to current and relevant information.

Users are encouraged to visit the Knowledge Centre frequently to remain informed of the latest developments and opportunities within the macadamia industry.

10 Fast-tracked Onboarding

10.1 Fast-track Steps

If you are a grower, specialist or service provider comfortable with software navigation, please feel free to follow these simple steps for onboarding seamlessly:

1. Verify that the entity name, farm name, block information, user permissions, and available data connections are correctly loaded or linked.
2. Review all farm and block information under the Farm & Block module and ensure that cultivars, planting dates, tree counts, planting densities, irrigation systems, and block boundaries are accurate.
3. Import or capture any available historical data, including yield records, quality information, nutritional analyses, scouting records, and farm activities.
4. Open MacShield and familiarise yourself with the Product Filter, MRL Filter, and Dashboard to ensure that crop protection decisions can be made in a compliant manner.
5. Use MacScore to calculate your Yield Score and Economic Score and compare your performance against relevant industry benchmarks.
6. Navigate to MacIQ and review the available maps, overlays, risk indicators, and analytical outputs generated from your farm data.
7. Verify that all required operational records are being captured consistently within the Yield, Nutrition, Pest Monitor, Activities, and Products modules.
8. Explore MacGuru to access best-practice guidelines, technical resources, training material, and current industry recommendations.
9. Review any generated risks, alerts, or signals and investigate areas where intervention may be required.
10. Establish a routine for updating farm records throughout the season to ensure that outputs remain current and accurate.
11. Once these steps have been completed, users can begin utilising the full analytical and decision-support capabilities of the SAMAC Integrator.

11 Phased-in onboard

For users who prefer a gradual implementation approach, the SAMAC Integrator can be adopted in phases. This allows users to become familiar with each component before progressing to the next level of functionality.

Phase 1: MacShield

Begin with MacShield (see Section 3). This module requires minimal setup and immediately provides access to registered crop protection products, labels, safety datasheets, active ingredient information, and Maximum Residue Limits. Users can quickly improve crop protection compliance and reduce market-access risk.

Phase 2: MacScore

Once familiar with the platform, proceed to MacScore (see Section 4). Enter yield, quality, income, and expenditure information to benchmark performance against industry averages and top-performing growers. This phase introduces data-driven performance evaluation and economic analysis.

Phase 3: Farm and Block Configuration

Before advanced analytics can be utilised, ensure that all farms and blocks are correctly configured within MacIQ. Accurate block boundaries, cultivar information, planting dates, tree counts, and irrigation details form the foundation of all future analyses. Make sure that naming is as consistent as possible, always use the same Entity, Farm and Block names in spreadsheets as they appear in the SAMAC Integrator.

Phase 4: Operational Data Capture

Begin recording operational information such as yield, nutrition, pest monitoring, product applications, and farm activities. The value of the SAMAC Integrator increases as the completeness and quality of captured data improve over time.

Phase 5: Analytics and Risk Interpretation

Use the analytical capabilities within MacIQ to identify trends, benchmark performance, evaluate risks, and investigate factors influencing yield, quality, and profitability. Review generated signals regularly and use them to support management decisions.

Phase 6: Knowledge Integration

Finally, utilise MacGuru (see Section 6) to access supporting research, technical resources, best-practice guidelines, and training material. This allows users to combine farm-specific insights with current industry knowledge and recommendations.

This phased approach enables users to progressively unlock the full value of the SAMAC Integrator while minimising the initial time required for implementation.

12 Frequently asked questions

The following answers address common questions raised during the onboarding process.

Do I need to be a SAMAC member to use the SAMAC Integrator?

MacShield is available to all visitors.

Access to MacScore, MacIQ, and MacGuru requires an approved SAMAC Integrator account and active membership status. The SAMAC Integrator Account is not the same as your SAMAC Website Log In account. It is uniquely generated upon email and membership status verification.

Which module should I start with?

New users are encouraged to Register, Sign In, then Add their Farm, Block and Planting information.

How accurate does my farm information need to be?

All analytical outputs depend on accurate farm and block information. Users should ensure that cultivar information, planting dates, planting densities, tree counts, and block boundaries are maintained as accurately as possible.

Can I edit farm and block information later?

Yes. Farm and block information can be updated whenever changes occur within the operation.

Can historical data be added?

Yes. Historical yield, quality, nutrition, scouting, and activity records can be imported or captured through the Data Centre by manual uploads from provided templates, or by connecting to an API to improve benchmarking and analytical outputs.

What happens if data is missing?

Certain analytical outputs may not be available or may be less reliable when important datasets are incomplete. Users should regularly review data completeness.

Who can view my farm information?

Access to farm information is controlled through user permissions. Users only have access to data that has been specifically assigned to them. (See section 2.2)

How often should data be updated?

Data should be updated whenever new information becomes available. Regular updates improve the accuracy of dashboards, benchmarks, risk indicators, and analytical outputs.

Can the SAMAC Integrator be used on a mobile device?

Yes. The platform can be accessed through modern web browsers on desktop computers, tablets, and mobile devices.

Where can I find additional help?

Additional support is available through the platform onboarding tour, tooltips ⓘ, MacGuru Knowledge Centre

resources, and the SAMAC support team.



Look for this help icon in the top bar. From this menu, you can replay the guided tours which help you through the current section of the integrator. You can also contact the SAMAC Integrator support team if you still have any questions.

What is the recommended minimum implementation?

At a minimum, users should maintain accurate Farm & Block information, capture annual yield and quality data, and utilise MacShield for crop protection compliance. This provides immediate value while creating a foundation for future analytical capabilities.

13 Glossary and Acronyms

Active ingredient	The active ingredient is the synthesised or naturally derived biological compound within a product that is primarily responsible for delivering the intended effect or solution. This component is the functional driver of the product's efficacy. The active ingredient also plays a critical role in regulatory assessments, including the determination of Maximum Residue Limits (MRLs).
Active quantity	The concentration of the active ingredient in the product as it is registered, produced and marketed by the supplier against a specific range of targets (pests) or for the purpose of its application at the specified dosage.
Activities	Day-to-day farming tasks, activity hours and man hours.
Adjuvants	Additives that enhance the performance of pesticides (e.g. herbicides, insecticides, or fungicides). They help products stick better, spread more evenly, or mix properly with water. Adjuvants modify the spray solution to enhance its effectiveness in a variety of ways, but they don't have active properties related to the purpose of the pesticide itself.
Company	The name of the supplier company that holds the registration to produce, market and sell the product for use on specific crops against specific targets at specific dosages according to specific instructions while adhering to the crop-related pre-harvest intervals.
Country MRL	This value in mg/kg or parts per million (ppm) gives the maximum allowable residue limit of a trace element or active residue that is accepted by the associated country. Exceeding this threshold could result in the product being rejected for export or import. This is closely tied to the pre-harvest interval (PHI) in the country of use. In the absence of a specified MRL in South Africa, the export country MRL is applied.
Cultivar	The registered name of the cultivated variety (i.e. cultivar) in the macadamia orchard.
Cultivar Type	The genetic contribution of the macadamia cultivar.
Delivered kg/tree (DNIS)	Yield - dry nut in shell (DIS or DNIS) at 1.5% moisture, given as the kilograms per tree.
Delivered Score	MacScore calculation of the performance relative to the filtered range and criteria.
Deviation from the Norm	The degree to which your sample differs from the Industry Norm, expressed as a percentage with 0 indicating a match between your sample and the Industry Norm.
DNIS	Yield - dry nut in shell (DIS or DNIS) at 1.5% moisture, given in kilograms.
Dosage	The volume of the concentrated purchased product to be applied against the target on the specific crop, with a given water volume for liquids, e.g. 10ml (concentrate) per 100L (water volume).
Economic Score	Return on investment and breakeven calculations based on your input.
Element	The micro or macro nutrition related element being measured from your associated soil, leaf or sap samples.

13. GLOSSARY AND ACRONYMS

Entity	A single legal body that presides over one or more farms.
Expenses	Monies spent toward orchard establishment, crop production, risk mitigation, farm acquisition, bond interests, overheads, post-harvest activities, etc.
Farm	Refers to a regional unit that produces macadamia nuts. Ideally every farm should be registered as a supplier at any of our registered processors. An entity can have multiple farms under its umbrella. Farms hold multiple blocks and blocks holds plantings.
Farm & Block Information	The logged-in entity holds farms with blocks. In each block, there are plantings.
Form	The product formulation state in which the purchased product is received, e.g. liquid or powder form. This assists in knowing the type of safety measures required when handling the product.
Graph	Gives a graphic overview according to the filtered entity / farm / block / planting selections.
Income	Back on farm price per kilogram dry nut in shell (DNIS, at 1.5% moisture) achieved for the Delivered kg/tree (DNIS).
Industry Context	The South African Macadamia industry figures, as represented by the totality of data received in the SAMAC Integrator.
Industry Norm	The averaged value of all measured elements associated with the filters provided.
Irrigation Type	Select the method of watering the macadamia trees from the provided list.
KML file	A KML file is typically created by drawing on a map (geospatial data) with coordinate points to represent a specific piece of land i.e. your farm and all its blocks mapped individually. This is also done quite easily using Google Earth as a free resource. Please refer to the illustrated guide for more details. It is imperative that when blocks are drawn on a map that the naming convention used for your block matches to the name of the block you provided in the "Block Information" template.
Knowledge Centre	Literature, video, guides and more that contains valuable information related to macadamia farming, conveniently categorised by relevance for ease of use. This includes fact sheet, best practice documentation and videos showcasing techniques and approaches based on both research outcomes and technical experience.
MacGuru	Research outcomes. Lessons learnt. General trends and answers generated through data analysis.
MacIQ	Integration platform for that personalized experience.
MacScore	Informed calculators to facilitate decision-making on the farm.
MacShield	Find the right registered product solutions to protect your macadamia crop and preserve quality. With three easy ways to search, MacShield helps you stay compliant, reduce risk, and make informed decisions for your farm.
MRL	Maximum allowable residue limit.

MRL Filter	Filter according to active ingredient to access corresponding MRLs, track residue origin, and review related information to ensure regulatory compliance and maintain market eligibility.
Overview	Gives a tabled data overview according to the filtered entity / farm / block / planting selections.
Planting	Blocks can hold multiple plantings, of which some may be retired and others of different nature. Multiple plantings can be assigned to a single block. In the event of multiple cultivars or variation in planted date, a planting is created. For example, a block that was planted at the same time with both 816 and Nelmak 2 cultivars will have two plantings. If only half of the block was planted each year, this creates the need for a sub-division into 4 plantings. This is dependent on the management style of the farmer and the level of accuracy the farmer would like to track.
Planting Density	Trees per hectare based on the distance between the rows and the distance between the trees in the row.
PPP	Plant protection products applied.
Pre-harvest interval	Pre-Harvest Interval (PHI), also known as the withholding period (WHP), refers to the minimum number of days that must pass between the application of a crop protection product (at the specified dosage) and the harvesting or handling of the crop. This withholding period ensures that residue levels meet the Maximum Residue Limits (MRLs) permitted by national or international food safety product standards. Adhering to the PHI is essential for compliance, consumer safety, and market access.
Product	The registered tradename that can be applied against the target on macadamias at the relevant dosage.
Product Filter	Easily find the right registered products to address specific challenges, from insects, diseases, and weeds to plant growth regulators and adjuvants.
Province	The South African province within South Africa's boundaries that encompasses your region and subsequently, your farm.
Rain	Hourly Rainfall
Region	The geographic reference of the production area in which the farm is located.
Registration No.	Every product allowed for safe against specific targets on specific crops by farmers, are registered and have been assigned a registration number starting with "L" under the regulations of Act 36 of 1947.
Resistance group	The mode-of-action associated group for chemicals that informs about the resistance build-up profile against the target. Varying the resistance group of products in a spray program is vital to reduce the resistance build-up to a single group of chemicals in the associated target.
RH	Hourly Relative Humidity
Risks	Climate, pest and disease to take note of in the prevention of crop and quality loss.
SAMAC Integrator	The platform collects and portrays data from Industry Players to provide grower members with insight into farming practices, that can improve yield and quality. The dashboard visually outlines the farming business.

13. GLOSSARY AND ACRONYMS

Scouting	Monitoring averages per planting for pests based on the Standard Operating Procedure per pest.
SKR %	Sound Kernel Recovery represents the average kernel weight fit for export and/or consumption in its current state expressed as a percentage (%) of the dry-nut-in-shell weight.
Temperature	Hourly Temperature
TKR	Total Kernel Recovery percentage represents the average amount of the dry-nut-in-shell weight.
Top 20	The average performance of the top 20 participants for the matching cultivar and applied filtered production conditions.
Tree Age	From the date of planting in the orchard, provide the tree age in years.
Tree Height	Height in meter (m) of the tree from the ground surface to the tree top.
Tree Radius	Radius, from the stem to the widest branch into the row in meter (m).
Tree Row Volume	Tree Row Volume (TRV) is the volume of tree canopy per hectare of orchard, expressed in litres per hectare (L/ha). It is calculated from tree height, average canopy width, and planting density (row and tree spacing). TRV provides a measure of the target sprayable canopy volume and is used to adjust pesticide or intervention spray volumes to ensure adequate canopy coverage without over- or under-application.
USK	Unusable, Unsound Total Kernel Recovery percentage represents the average amount of the dry-nut-in-shell weight.
VPD	Vapour pressure deficit (in kPa). A key parameter in agriculture because it links temperature and humidity to plant water use, stress levels, and disease risk. It measures how “thirsty” the air is for water. A high VPD means the air is dry, increasing plant transpiration and water loss. A low VPD means the air is humid, reducing transpiration but potentially favouring disease development.
WIH	Yield - wet nut in husk (WIH or WNIH) as harvested, given in kilograms.
Wind	Hourly Wind speed (m/s).
WIS	Yield - wet nut in shell (WIS or WNIS) normally around 10% moisture, given in kilograms.
Yield	Harvested macadamias weighed at 1.5% moisture dry nut in shell (DIS or DNIS).
Yield Score	Calculations of macadamia yield performance based on given criteria compared to a relevant target and average, to gauge your performance.



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