

Apthena®

Aphid Management

BASF
We create chemistry

TECHNICAL SUPPORT DOCUMENT

Growing together, with
the power of nature

Introducing **Apthena®**, a new beneficial insect attractant for **aphid management**

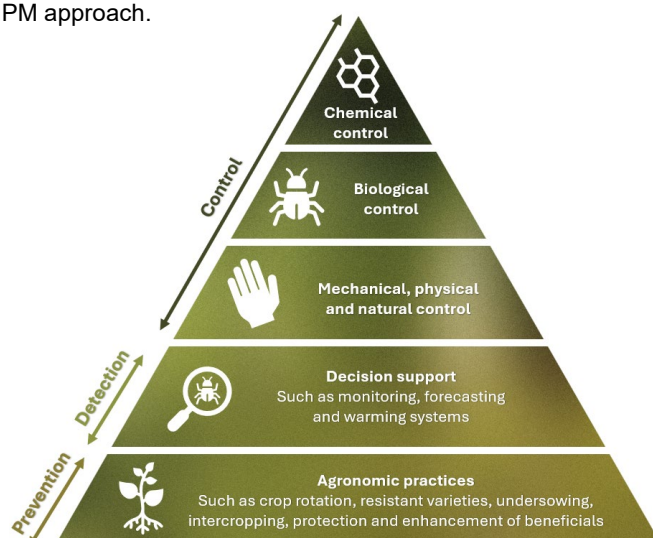
Apthena® is an innovative attractant for beneficial insects, designed to support **Integrated Pest Management (IPM)** strategies by enhancing naturally occurring ecosystem services. Rather than acting as a direct control agent, Apthena® operates at the base of the IPM pyramid, supporting early pest regulation and contributing more to sustainable crop protection systems.

By influencing insect behaviour through chemical ecology, Apthena® helps reduce reliance on chemical control and supports growers seeking to adopt a systems-based IPM approach.

How does **Apthena®** work?

One of the agreed aims of IPM is to reduce reliance on chemical control. To support this, the IPM pyramid highlights the importance of prioritising preventative and biological approaches before deploying pesticides.

Apthena® functions through insect chemical ecology, specifically targeting aphid interactions within the crop ecosystem. Insects communicate using chemical signals in the ecological community, which influence behaviours between individuals and between species. Any chemical involved in chemical interactions are termed semiochemicals. These are further divided into intraspecific communication chemicals (**pheromones**) and interspecific communication chemicals (**allelochemicals**).



The role of **(E)-β-farnesene (EBF)**

Apthena® contains (E)-β-farnesene (EBF), a compound identified as the aphid alarm pheromone. EBF is released naturally by aphids when attacked by predators, triggering dispersal behaviour.

EBF can also be detected by aphid predators and parasitoids, which use it as a kairomone to locate prey. Some plants are also known to produce EBF as part of their volatile profile, potentially acting as a defence allomone.

Understanding allelochemicals in aphid management

Allelochemicals are further divided into:



Allomones

Largely defensive chemicals which benefit the emitter



Kairomones

Chemicals emitted by one organism but exploited by another, typically a predator



Synomones

Benefits both the emitter and receiver, e.g. a plant emitting a chemical cue when damaged by herbivory, used by parasitoids locating a host



Apneumones

Chemicals released by non-living material that benefit the receiver but are detrimental to another organism that is in the non-living material

A complementary tool

Aphena® operates at multiple lower levels of the IPM pyramid, drawing in beneficials and slowing down aphid population build-up.

This contributes small but cumulative benefits that may delay the need for chemical intervention.

Aphena® is best suited to growers who are fully engaged with IPM principles and take a long-term, systems-based approach to pest management.

Positioning Aphena® within the IPM pyramid

Research has shown that EBF can increase the number of plant visits made by aphid natural enemies when present at higher concentrations. In this context, Aphena® contributes to:

- Enhanced ecosystem services from aphid predators and parasitoids
- Increased aphid mobility, potentially improving the effectiveness of subsequent insecticide applications
- Incremental suppression of aphid populations at an early stage

When to use Aphena®

Aphena® is used as part of an IPM approach, as a tool to help manipulate the biocontrol that occurs naturally as part of pest population regulation. Aphid predators and parasitoids need their prey or hosts to be present in the crop. The aim is to suppress aphid populations early in their population growth phase by 'drawing in' the beneficials faster and more evenly than if left to natural colonisation. Aphena® could be used:

- Prior to aphid arrival as predicted by an aphid forecasting tool
- In tank-mixture with IPM compatible insecticides
- In situations where pest pressure would not warrant the use of an insecticide, or in crops where the use of an insecticide is not desired

How to use Aphena®

Crop	All edible and inedible crops, ornamental and forestry under outdoor and protected production
Formulation	Aphena® delivers EBF in a plastic free microencapsulated formulation
Release profile	Delivers continuous release over 20-30 days (as a passive dispenser)
Application method	Standard hydraulic sprayer
Application rate	0.3-0.5 l/ha, higher rate for larger leaf area and coverage
Water volume	100-300l/ha as standard for most cropping situations, but can use higher if needed
Application interval	Recommend 14 days and repeat applications as needed, no maximum limitation
Rainfast	Ideally 24 hours
Temperature	Aphena® is exerting its effects on beneficial insects, therefore they need to be active. Most beneficials are most active above 12°C

For more information, visit agricentre.basf.co.uk/apthena