

Best Practice European Ant Control.

**SMART
GUIDE**



Enabling the most effective solutions to your pest problems.

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The European Ant Challenge

One of the most successful of all insects, ants can be a serious nuisance pest in homes, hospitals, restaurants and other buildings. Their ubiquitous nature and social structure makes them particularly difficult to control.

Of the 10,000-plus ant species known to exist, approximately 180 have been identified in Europe. The vast majority live outdoors where they perform a range of useful functions, including aerating the soil, controlling insect pests and breaking down organic matter.

Problem Species

Only a handful of ant species typically cause pest problems by virtue of their attraction to human and pet foods with high sugar and protein-contents.

The most common of these sweet-feeding pest species are black garden ants (*Lasius niger*), yellow ants (*Lasius flavus*), red lasius ants (*Lasius emarginatus*) and pavement ants (*Tetramorium caespitum*) all of which generally nest outdoors.

Carpenter ants (*Campanotus sp.*), pharaoh's ants (*Monomorium pharaonis*) and argentine ants (*Linepithema humile*), which tend to nest in close proximity to or within buildings, can also be problematic in some cases.



Biology and Behaviour

Ants owe much of their success to their advanced social structure. Clear divisions of labour between workers – scouts, foragers, larvae feeders and sentries – as well as between workers, queens and drones (reproductive males) make for the most efficient colony establishment, development and survival.

Exclusively responsible for egg-laying, queens (either an individual one for example in *Lasius* spp or 2 or more in species like *Monomorium pharaonis*) are completely dependent on foraging workers for their food supply. As are non-foraging workers, developing larvae and drones in the nest.

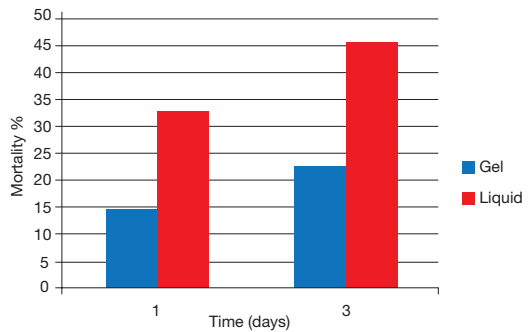
Following scent originally laid down by scouts which range widely, hunting out new food sources within 100 yards or so of the nest, foraging workers continuously carry food back to the colony based in single or multiple sites, depending on species. As well as consuming it themselves, they share the food with all the non-foraging adults and developing larvae in a process known as trophallaxis.

This results in the well-travelled ant trails between nest sites and their various food sources that characterise most infestations; trails that become more persistent and difficult to disrupt with increasing use.

Research has shown that, while fewer individuals can feed on liquids than on gel or solid food sources at any time, foraging workers typically consume five times more of a liquid bait than they do of a gel.

Another likely natural consequence of their adaption to feed on honeydew, it has also been shown ants share baits consumed in a liquid form far more rapidly and efficiently within the colony. As a result, dramatically improved rates of control can be seen compared to an equivalent gel bait formulation.

Comparative ant mortality of 0.005% fipronil liquid and gel baits. (Silverman and Roulston 2001)



Control Approach

The particular challenge presented by ants makes it important to tackle them with a behavior-led BASF Integrated Pest Management strategy based around five key essentials:

1. Inspect to establish the extent and location of the infestation.
2. Prescribe the best treatment strategy for the particular situation.
3. Communicate to set the right expectations and gain sufficient co-operation.
4. Treat using the most effective products in the best and safest ways.
5. Follow-up to assess results, and re-treat if necessary.



Tackling Ant Infestations



Effective control of social insects like ants can only be achieved through measures which eliminate both queens and their broods. Exclusion of foraging workers from food sources or their elimination – either physically or by chemical treatment – is rarely, if ever, sufficient to give more than temporary respite from most infestations.



Quality Baiting

The only reliable way of ensuring complete control is to provide foraging workers with an attractive, powerful and readily-accessible insecticide bait which they both consume themselves and distribute throughout their colonies.

This approach harnesses natural trophallactic ant behaviour to ensure all individuals – particularly queens and their larvae – receive a lethal dose of insecticide.

Without it a combination of the existing brood (eggs, larvae and pupae) and the prodigious egg-laying capacity of the queens can easily bring infestations back to their original level within a few weeks of treatment.

For the greatest effectiveness and reliability, the ant bait needs to be based on an insecticide which is:

- Undetectable to all ants yet powerful enough to be lethal when ingested or physically transferred within the colony in minimal amounts; and,
- Sufficiently delayed in its action to allow foraging workers to distribute it widely to all adults and larvae within the colony before succumbing.

The bait formulation must further be:

- Highly attractive and appealing to ants to stimulate the greatest possible worker feeding; and,
- In liquid form to ensure the most rapid and effective active ingredient uptake and redistribution throughout the colony.

Good baiting practice is equally critical to success. In particular:

- Indoor areas should be cleaned and alternative food sources removed

before treatment;

- Baits should be placed where they will not be rapidly removed by cleaning, and preferably close to known or suspected ant access points and foraging trails;
- Areas previously treated with repellent insecticides should be avoided;
- Outside baiting should be focused on active ant foraging trails, with bait points placed as close to nest sites as possible; and,
- Bait should be placed on non-porous surfaces and protected from rain, ideally in specialist bait stations

Support Spraying

Ant baiting will typically take between 10-14 days to give colony control. So where rapid elimination of foraging individuals is important in sensitive locations it may need to be complemented with tactical spraying of a fast-acting insecticide.

As well as rapidly eliminating visible indoor foraging ants, an insecticide with a repellent nature can also act as a useful perimeter barrier to further ant entry.

It is important to note though that repellent insecticides should not be used close to bait treatments as their repellent nature may prevent ants coming into contact with the bait.

Spraying should:

- Be targeted at indoor ant trails and wall/floor junctions in the vicinity of food sources;
- Include typical entry sites around windows and doors, drains and pipe runs; and,
- Avoid external ant trails in the vicinity of baiting points.



It is important to appreciate that ants are extraordinarily persistent in following trails to food and small enough to gain entry through even the tiniest of openings.

This makes thorough perimeter treatment with repellent insecticides vital to ensure effective exclusion as well as immediate elimination of obvious signs of infestation while baiting achieves its full colony control effect.

Where infestations are large, well-established or otherwise particularly challenging, external spraying of nests and ant trails with a slower-acting, non-repellent insecticide will be valuable.

Physical Controls

Although generally ineffective on their own, physical means of excluding ants from buildings or food sources can be valuable alongside chemical controls too, especially in guarding against re-infestation from new colonies around sensitive locations.

The most effective measures include:

- Ant-proof storage of foods in truly sealable containers;
- Regular cleaning of floors and surfaces to remove spillages and scent trails;
- Good disposal of kitchen scraps and food waste; and,
- Permanent sealing of access points with flexible caulk.



Treatment Programmes

Based on a combination of internal, external and perimeter treatment, the most effective ant treatment programmes involve:

- Thoroughly inspecting the premises in dry weather to identify the level of infestation, species of ant (where possible), main trails and access points.
- Tracing external ant runs as far back to the nest as feasible, bearing in mind that trails may be very difficult to locate when conditions are wet.
- Placing sufficient specialist liquid **Formidor**[®] ant bait along external ant runs, using specialist bait stations or other weather protections.
- Placing additional **Formidor**[®] bait points at perimeter access points and along internal ant trails in locations least likely to be cleaned away wherever immediate visible pest elimination is not the overriding priority.
- Thoroughly spraying a residual insecticidal spray along indoor trails and perimeter access points to complement external **Formidor**[®] baiting in sensitive locations requiring immediate visible pest elimination.
- Fully informing customers of the programme and the location of indoor baiting points in particular, warning them not to clean them away or use aerosol insecticides near them.
- Returning 2-4 weeks after treatment to check for any continuing signs of infestation, replenishing bait points if they are empty and ants are still visible.
- Advising customers on effective physical controls to minimise the danger of re-infestation.

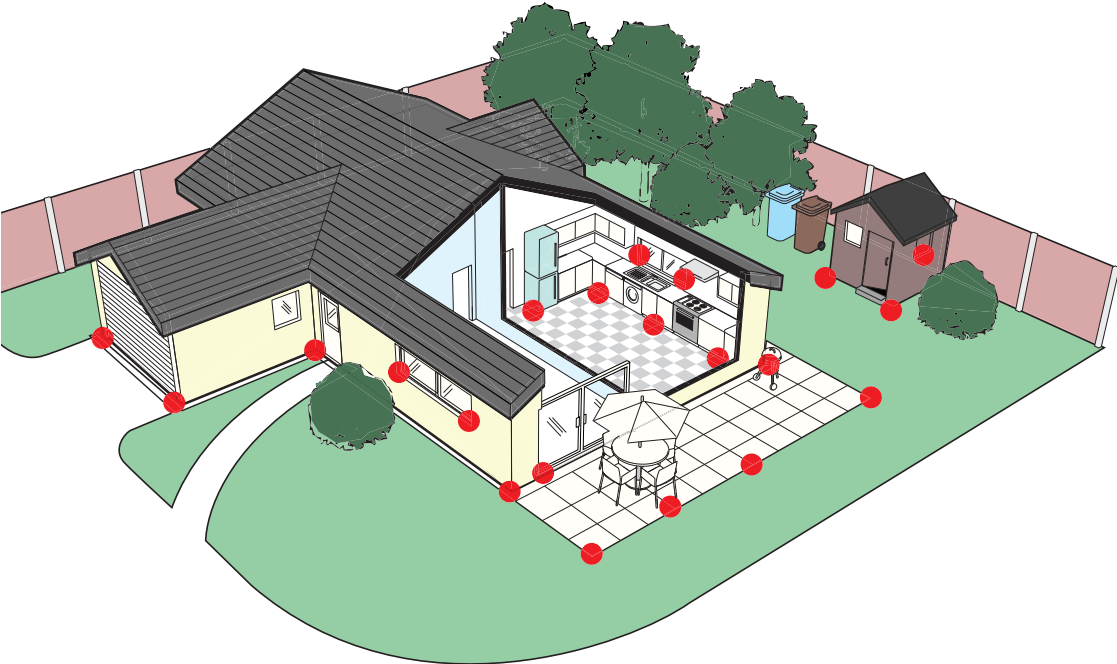


Programme Summary

	Standard Treatment
Inside	Formidor®
Perimeter	Formidor®
Outside	Formidor®

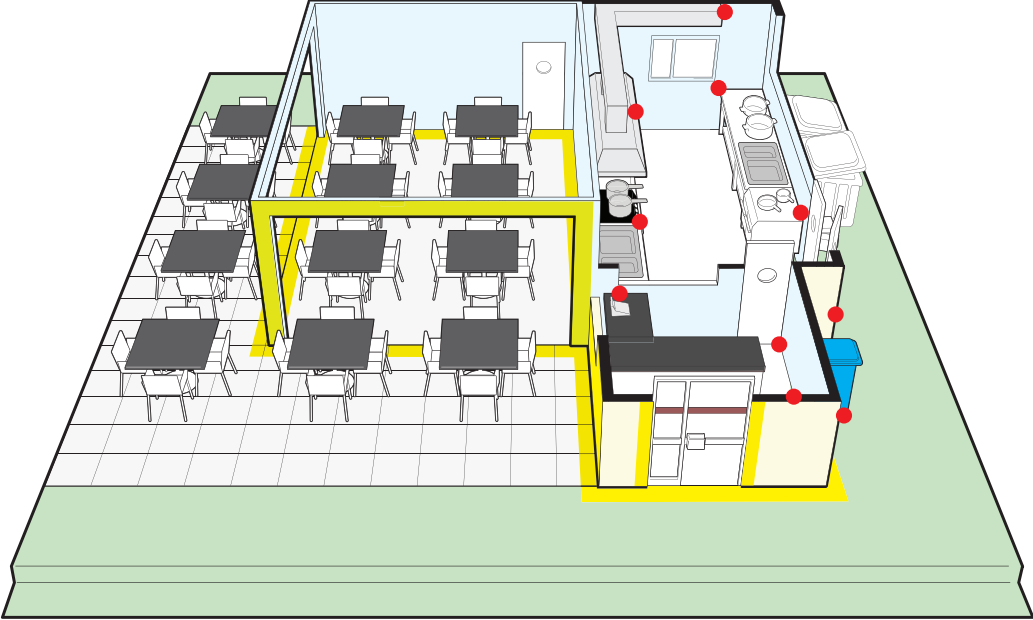
General Domestic Treatment

Example of how **Formidor®** can be utilised in a typical domestic situation to gain control of ants both indoors and outdoors.



Commercial Treatment

Example of how a residual insecticidal spray can be utilised as a supportive spray treatment, to deliver rapid elimination of foraging individuals in public areas, in combination with a **Formidor®** treatment to deliver colony control.



 **Formidor®**

 Residual Insecticidal spray

Making the Most of the Products

High performance BASF insecticides provide European pest controllers with the most reliable way of controlling sweet feeding ants in any situation.

Formidor®

Formidor® brings the low dose killing power of fipronil – well-proven in the leading cockroach bait, **Goliath®** Gel – to the professional ant control market.

Lethal to adult ants and larvae in tiny amounts, it has a completely different mode of action to other baits, making it especially valuable in anti-resistance strategies.

Building on research showing the clear superiority of liquid baits over gels and solids in both worker uptake and trophallaxis, **Formidor®** is formulated as a sugar rich liquid.

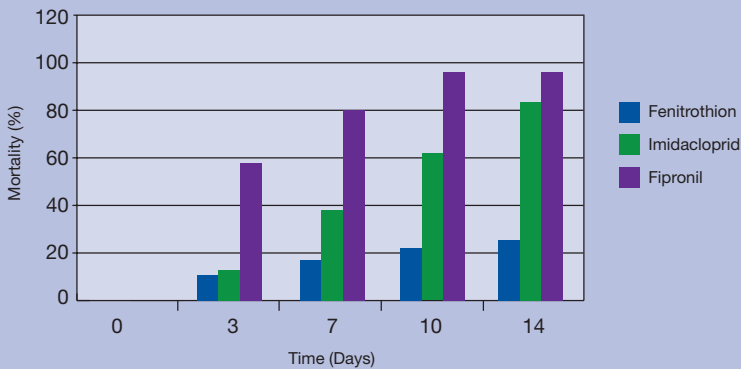
It is irresistible to ants – which cannot detect the insecticide – and maintains its attractiveness over an extended period, leading to ready consumption and rapid transfer back to the nest.

The 0.05% concentration of fipronil is carefully engineered to affect ants from 12-24 hours after consumption. This gives workers sufficient time to share the bait widely with other adults as well as larvae and queens before starting to succumb.

Formidor® is most effective against *Lasius* and other species of the sub-family Formicinae. It causes colony collapse within 10-14 days of treatment, giving more rapid and consistent colony control than other common ant killers.



Efficacy of 3 active ingredients for *Lasius niger* colony control



Key Ant Treatment Guidelines

- Thorough inspection in dry weather is vital to trace external as well as internal ant trails.
- Quality insecticide baiting is the only reliable route to complete colony control.
- In addition to being attractive and powerful, the bait needs to have a sufficiently delayed action to allow the widest sharing throughout the colony.
- Liquid formulations are far more effective than gels in getting insecticide baits into colonies, despite gels attracting greater levels of visible feeding.
- In sensitive locations requiring immediate visible control, indoor and perimeter spraying with a fast-acting insecticide may be needed alongside baiting.
- Where colonies are large and well-established, nest and external spraying with a powerful insecticide may be valuable alongside baiting.
- Repellent insecticides should never be used in close proximity to baiting points.
- Good customer communication is essential to set control expectations and avoid unintentional interference with treatments.
- A follow-up visit 2-4 weeks after treatment is always advisable to check on control, show customer care and to provide guidance on proofing to against future infestations.



Formidor® contains fipronil.

Formidor® is a registered trademarks of BASF.

Use biocides safely. Always read the label and product information before use.

Further information from:
BASF Plc, Professional and Specialty Solutions - Urban and Rural Pest Control 4th
and 5th Floors, 2 Stockport Exchange, Railway Road, Stockport SK1 3GG
Email: pestinfo@basf.com

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