IMPORTANCE OF FLY CONTROL

Fly-borne problems:

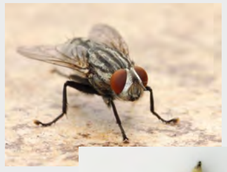
- nuisance to animals
- poor animal health and comfort
- reduced feed intake and weight gains
- transmission of bacterial and viral diseases e.g. *Mastitis*
- increased veterinary costs

Benefits of fly control:

- good animal welfare
- lower disease spread rate
- higher animal comfort
- healthier and more productive animals
- improved work environment
- lower veterinary costs

FLY SPECIES TO BE CONTROLLED

House Fly (*Musca domestica*)

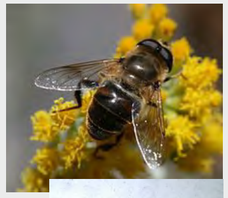


The most common fly species occurring in large numbers in and around livestock buildings. Having sponging mouth parts, its diet includes human and animal food, animal waste and garbage.
Deposits as much as 150 eggs at a time which breed in fresh manure, spilled feed or wet organic matter. Breeding abundantly, the populations may increase drastically in a relatively short time.

Stable Fly (*Stomoxys calcitrans*)

Blood-feeding species with piercing mouth parts that penetrate the host's (animal and human) skin. Deposits large numbers of eggs - up to 50 at a time - that breed in fecal material, debris, wet grass and compost. Breeds and feeds mostly during the day. Known to cause slower weight gain in cattle and lower rate of milk production in dairy cows.

European hoverfly (*Eristalis tenax*) also known as drone fly ("dronefly")



Usually not an important pest, but occasionally the larvae may be a nuisance in livestock areas, where they often occur in large numbers in manure lagoons and dung pits.

The larva of Eristalis tenax is a rat-tailed maggot living in drainage ditches, pools around manure piles, sewage, etc. which contain water polluted with organic matter. Larvae thought to feed on the bacteria living in these places.

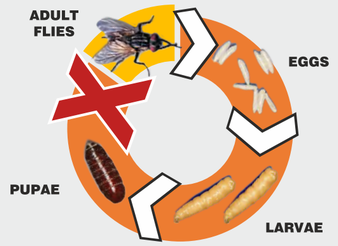
IMPORTANCE OF LARVA CONTROL

The importance of fly control using Insect Growth Regulator (IGR) products has recently grown in pest control. The wide-spread resistance to various adulticides developed as a consequence of their use over a long time makes it quite a challenge to reach satisfactory, effective control with insecticides alone. Larvicide application may significantly decrease the level of fly infestation and, as a result, reduce the frequency of insecticide treatments.
Fly-free conditions in large-scale animal breeding farms can only be achieved by implementing an integrated control program including both larval and adult control.

The repartition of fly population by life cycle stage

The fly life cycle begins with an egg, then develops through a larval and pupal phase before they reach maturity. It is important to note that 8 5 % of fly population spend most of their time as juveniles. Juvenile insects spend their life eating, growing, moulting, until they become an adult. This process is controlled by their juvenile hormone level which decreases till the last larval stage, inducing larva-to-pupa moult before transformation to adults.

S-methoprene was the first commercially developed insect juvenile hormone analogue. It mimics the action of the insect growth regulating hormone and interferes with the insect's life cycle by avoiding the drop of the hormone level, thus preventing juvenile insects from reaching maturity. The mature stages lose their capacity to reproduce, thus the cycle of reproduction stops and infestations diminish.



S-methoprene active substance

The European Committee has approved the *S-methoprene* active substance by its Implementing Regulation No. 91/2014/EU of 31 January 2014 for product type 18 (Insecticides). A number of product dossiers have been prepared by BÁBOLNA BIO till 1 September 2015 for several indoor and outdoor formulations and applications. BÁBOLNA BIO synthesizes *S-methoprene* under certified Good Manufacturing Practice (GMP) conditions.

S-methoprene based formulations have several advantages over conventional insecticides. They are highly selective and target specific, with low mammalian toxicity and favourable environmental profile. There is no significant toxicity to warm-blooded animals and environment.

Since *S-methoprene* does not kill adults directly, it is sometimes used in parallel with fast acting insecticides thus providing both knockdown and residual activity.

Bábolna Bio

FLY CONTROL
at animal breeding sites with Bábolna Bio

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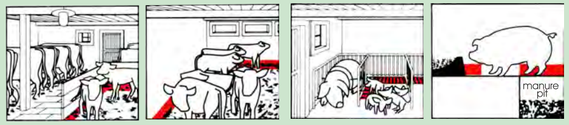
LARVA CONTROL with S-methoprene Insect Growth Regulator (IGR)

BIOPREN® FLY LARVICIDES were developed for the effective control of house flies in livestock/farm buildings, poultry houses, barns, etc. Both formulations contain *S-methoprene* insect growth regulator in microencapsulated and free form. Free form has immeadiate effect on larvae, while microencapsulated part will be released gradually, thus prolonging efficacy for 90 days. May be used alone, but better in parallel with adulticides.

Use of fly larvicides provides effective control of house flies by reducing egg production and preventing the development of maggots. Larvae (maggots) show physiological and functional defects leading to the inability to develop into normal adults. The formulations do not have effect on adult insects but the IGR active ingredient prevents reproduction of fly population. In parallel use with conventional insecticides, BIOPREN® larvicides delay the development of insecticide resistance.

ADVANTAGES

- **Eliminates the biggest, but less visible part of fly population (immature stages)**
- **Significant efficacy and long lasting residuality**
- **Effective against the fly larvae resistant to synthetic pyrethroids**
- **Not toxic to vertebrates and environment friendly**
- **Adequate for pre-hatch application of flies**



BIOPREN® 50 LFL LIQUID FLY LARVICIDE

EU BPR status: Biocidal dossier under evaluation

Active ingredient:
w/w 5.00 % (50.0 g/kg) *S-methoprene*

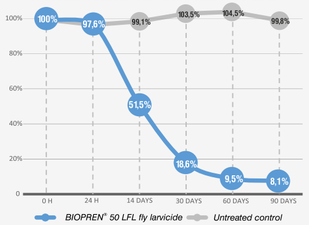
Warning

Dispersable larvicide concentrate to be applied on the manure accumulated under the slatted floor and the cage or the deep litter system. To be mixed with water and applied with sprayer, such as hand-held, backpack, or power sprayer capable of delivering coarse surface wetting spray. Avoid contact of livestock or food with the product. If this is not feasible, the animals are to be removed during treatment.

BIOPREN® 50 LFL does not cause unpleasant odour when used as directed.

On fully slatted floors, the whole floor should be treated, while in cages it should be applied on the accumulated manure (every 10 cm thick layer) under the cages.
Manure stored outside the building should only be treated if it is deposited in a manure pit which has leak-proof insulation and corresponds to any other requirements of safe storage of manure.

Level of the house fly *(Musca domestica)* populations in areas treated with BIOPREN® 50 LFL



Application dose:
200 ml in 5 l water/100 m^2
Apply this dosage on approx.
10 cm thick manure.
Treat every newly formed manure layer of 10 cm thick.

The efficacy lasts at least 90 days after application.

100%= fly population before treatment

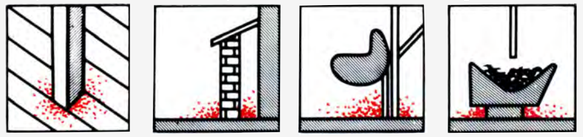
code number	packing unit	unit/carton	unit/pallet
KS-22598	1 litre/bottle	12	384
KS-22597	5 litre/can	2	66

BIOPREN® 4 GR FLY LARVICIDE GRANULE

EU BPR status: Biocidal dossier under evaluation

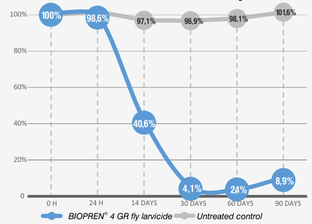
Active ingredient:
w/w 0.40 % (4.0 g/kg) *S-methoprene*

Ready-to-use, easy-to-handle larvicide to be applied onto the surface of the manure with an appropriate device (measuring cup, hand held granule applicator) indoors and outdoors. No need to remove the livestock during the treatment, however direct contact of animals or food with the product should be avoided. Offered to be used on straw bedding if it is not trampled by animals. Apply at dump areas, around the corners, pillars, feeders and under water troughs.



On fully slatted floors, the whole floor should be treated, while in cages it should be applied on the accumulated manure (every 10 cm thick layer) under the cages.
Suitable for the treatment of dung stored outdoors if it is placed in a dung-pit which is leak-proof, insulated and corresponds to other requirements of safe dung storage.

Level of the house fly *(Musca domestica)* populations in areas treated with BIOPREN® 4 GR fly larvicide



Application dose:
30 g/m^2
Apply this dosage on approx.
10 cm thick manure.
Treat every newly formed manure layer of 8- 10 cm thick.

The efficacy lasts at least 90 days after application.

100%= fly population before treatment

code number	packing unit	unit/carton	unit/pallet
KS-22237	5 kg/bucket	-	80
KS-22238	20 kg/bucket	-	33

ADULT CONTROL

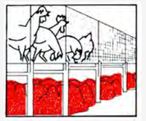
PESTSTOP® COMBI 8 CS

EU BPR status: Distributed under national law

Active ingredients: w/w 5.90 % (60 g/l) permethrin
w/w 2.60 % (27 g/l) cypermethrin
w/w 7.60 % (78 g/l) PBO

Special, contact action liquid microencapsulated formulation providing rapid killing effect and long-lasting efficacy. Kills house flies and effective against crawling insects in closed spaces. In poultry farms the product is suitable against litter beetle *(Alphitobius diaperinus)* and red mite *(Dermanyssus gallinae)*.
It preserves its effect for 12-16 weeks against crawling and for 3-4 weeks against flying insects due to the gradual release of the active ingredient. Can be applied also on porous surfaces where the capsules stay and stick well.
In the poultry farm livestock should not be in the premises during the treatment. The reintroduction of livestock is possible only after drying of treated surface and adequate ventilation.

Warning



Application dose:
flying insects: 65 ml to 5 l water/100 m^2 with efficacy 3-4 weeks
crawling insects: 125 -160 ml to 5 l water /100 m^2 with efficacy 12-16 weeks
litter beetle: 160 ml to 5 l water/100 m^2 with efficacy 6-12 weeks
red mite: 125 ml to 5 l water/150 m^2 with efficacy 6 weeks

code number	packing unit	unit/carton	unit/pallet
KS-22132	1 litre/bottle	12	384

PESTSTOP® PERM 25 CS

EU BPR status: Biocidal dossier under evaluation

Active ingredient: w/w 23.6 % (250 g/l) permethrin

Contact action, liquid microencapsulated concentrate against crawling and flying insects for indoor and perimeter surface treatment. To be applied as a crack and crevice treatment and/or selected spot application to areas where insects may be hiding, living and breeding. The special microencapsulated suspension ensures prolonged efficacy.
For control of flies, food visiting flies (e.g. house fly), stable flies: apply the spray to surfaces frequented by the insects in indoor premises: side-walls, ceiling, overhead wall surfaces, pillars, beams, window and door frames, etc. at a height inaccessible to domestic and farm animals.

Application dose:
25 - 50 ml to 5 l water / 100 m^2 against crawling insects
50 ml to 5 l water / 100 m^2 against flying insects

Warning

code number	packing unit	unit/carton	unit/pallet
KS-22193	1 litre/bottle	12	792

NON-TOXIC PRODUCTS

BIOSTOP® farm fly trap

EU BPR status: Free sale product

An insecticide-free, easy-to-use trap primarily for house fly control recommended to use outdoors in animal breeding sites, family farms, meat and food processing facilities, water treatment plants, near dunghills and dumps & at any other places where big number of flies can be a nuisance and where chemical insecticide application is not desirable.
The plastic pouch containing a very effective powder attractant is to be dissolved with lukewarm water. Suitable to catch several thousands of flies.

code number	packing unit	unit/carton	unit/pallet
KS-16009	1 pc/box	12	192
KE-16617	1 pc without box	20	360

BIOSTOP® sticky fly trap

EU BPR status: Free sale product

Easy-to-use, insecticide-free foldable sticky trap available in 80x500 mm and 250x600 mm with hanger for catching house flies. Can be used in animal breeding sites, food industry units, storage rooms, etc.

ADVANTAGES:
- non-toxic sticky pad
- completely safe for the environment, does not contain any toxic insecticide
- suitable for fly control even in areas where insecticide application is prohibited
- the glue remains effective for a long time,
- the special sticky pad developed and tested in the laboratory and field attracts flies very efficiently
- its colour and graphic design increase its attractiveness

code number	packing unit	unit/carton	unit/pallet
KE-16616 small	1 pc	60	5 760
KS-16008 giant	4 pcs/sachet	10	320

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