The fight against winged insects

Flies (horseflies, houseflies, midges and various mosquitoes) are the horse's daily plague when come the summer months. They induce numerous annoyances, which can have more or less serious effects. How can the infestation of these unwanted nuisances be controlled ? What different means does the rider or breeder have to fight them ?

By Marie DELERUE - Laetitia MARNAY-LE MASNE - | 02.05.2018 |

Technical level

Horse harassed by insects

Various annoyances caused by insects

Flies around a horse's eye

Harassement by flies generates **stress** for the horse, which can lead to **nervousness, agitation**, especially of the head, when the horse is ridden.

Daily discomfort

When out in the field, insect harassment can lead to a change in a horse's time-budget, i.e the distribution of time over a day, given to different activities such as feeding, rest either standing or lying down, moving around...

It has been noticed with Camargue horses, that they spend 2h30 less time feeding, especially in the daytime in the summer months, when they prefer to group together in a resting area, where they seemless prone to insect attacks (Duncan 1985).

Disease carriers

Insect activity also gives rise to inconveniences such as conjunctivitis, secondary infection of wounds, transmission of diseases such as West Nile fever, or Equine Infectious Anaemia (EIA). Lastly, hypersensitivity to the saliva of biting insects, especially culicoides (can affect up to 10 % of horses) leads to an invalidating condition : **Summer seasonal recurrent dermatitis** (SSRD) or sweet itch.

The main offending insects

Portrait of a chestnut horse, covered in flies

The life cycle of most flies comprises 4 phases (egg, larva, nymphe and adult), the first three stages take place in damp areas (mud, silt, manure, droppings), the final stage on or near animals. A life cycle lasts on average from 3 weeks to 2 months depending on the species.

Flies, horseflies, midges and mosquitoes… strike especially in sprin g and summer, from April to October, with a peak in July. They are attracted by animal sweat, and choose areas of thin skin, which are generally not very accessible to the horse….Below are the main offenders.

Culicoides

Small midges, only the female **feeds on blood**, they are present in the west of France (Normandy, Brittany, South West of France), areas where the **climate is mild and humid.** They are particularly active at dusk and dawn, and sometimes at night. Their bite induces **intense itching** in horses presenting **hypersensitivity to their saliva**. This hypersensitivity is the cause of SSRD (**Summer seasonal recurrent dermatitis**) or sweet itch.

Hippobosca Equina (New-forest fly, crab fly)

Fly of around 10mm, found mainly in **mild climates**, they live on the animal which they parasitise. They particularly favour sensitive areas (anus, perineum, inside the thighs) where their bite is painful. Their movements sometimes give rise to **violent reactions**. They are hard to catch (move sideways like crabs) and to kill (they require squeezing individually between fingernails), they are sensitive to greasy products such as oil or vaseline (which kills them).Therefore the areas on the horse to be protected can be smeared with a grease. Take care however not to create sunburn when the weather is hot and sunny !

Horseflies (Tabanidae)

Horseflies live near **forest areas** or **damp fields**. Their bite is extremely painful and usually occurs in the daytime. It causes swelling and intense itching. It also provokes **bleeding**, which attracts other insects.

Houseflies (Musca domestica)

Houseflies live off scurfy skin, eye secretions and the blood from horsefly bites, mainly in the hot hours of the day. They move from one animal to another, and are **carriers of afflictions such as conjunctivitis.**

Botflies (Gasterophilus)

The discomfort caused by bots is essentially related to **internal parasitism of the stomach** by larvae, caused through the horse ingesting **eggs laid on its legs**, lips and mane.

Preventing massive infestation

Getting rid of the horse's environmental insects entirely is as fanciful as it is undesirable. However, it is necessary to take into account **proliferation limiting factors** in designing and management of the horse's environment.

Prior considerations to infrastructure design

Give prior thought to :

- **Set-up of the buildings** : Location, positioning;
- **Location of the manure heap**, place of predilection for numerous insects : the implementation should comply to the local sanitary regulations. Placed not too far from the buildings, it should ideally be located downwind regarding the prevailing winds;
- **The atmosphere in the buildings**, especially **ventilation**, which contributes to the other environmental factors : temperature, humidity, bacterial and insect contamination, toxic fume concentration.

Take into account the surrounding environment

- **Ponds, areas of stagnant water**;
- **Livestock** (common parasites)….
- **Metal the ground where mud forms and stagnates** (places where horseflies develop, and where they can survive for several years).

Management of the facility : general hygiene and good breeding practices

The aim is to **hinder the development cycle of parasites** in general, flies in particular, by reducing the population of future generations.

In the stables

- **Muck out and clean thoroughly** on a regular basis, without forgetting mangers, drinking troughs and surroundings, before refilling with bedding;
- Ensure a **more frequent emptying of the manure heap in the summer months**, as this is ideal reproduction ground for insects;
- **Disinfection** of cleaned out premises (rid of all organic matter) by spraying walls from top to bottom, outwards, then leave to dry. Finally rinse mangers and drinking troughs thoroughly;
- **Disinfection and keeping empty for a period** (including silos and hay storage areas) should be implemented on a regular basis. This also hinders parasite development cycles.

In the field

- Preserve **natural shelters** (hedges and trees), living and breeding places for insects natural predators;
- Leave an access to **field shelters in summer** but :
    - **Eliminate droppings** inside the shelter regularly;
    - **Equip the entrance with straps to chase insects off the animals** through contact, and preserving the inside of the shelter;
    - **Repair any water leakage quickly,** water favours the development cycle of insects.

Regular observation of the animals

Observation of the animals enables :

- **To react to the first signs** (behaviour, general state of health, marks on the body);
- **Adapt times when the horses are out to graze** depending on their sensitivity;
    - **Put them out preferably at night and early morning** to avoid the hottest hours;
    - Excepting horses affected by sweet itch, it is better to put them out before 5pm, when the culicoides like to come out, as they are the main cause of SSRD;
- **Do not put a sensitive horse in the lead when out hacking** : The lead horse is often attacked by insects more than those following.

Insect control : Natural means, tools and equipment

Natural elements which restrict the annoyances caused by insects

- **The horse's natural protection should be preserved**, especially when he lives out : **mane, tail and forelock**;
- **Avoid leaving a horse out in a field alone** : standing in a group, head to tail, allows horses to swish the flies away from each other….
- **Natural protection of the environment** (hedges, shaded areas);
- **Natural reflexes** : twitching (action of the skin muscles to chase insects away), abrupt movements, ability to roll in the dirt, grooming of horses living out should be kept minimal. (protection with dried mud);
- **Avoid leaving the horse tied up for prolonged periods of time**, this restricts neck movement to chase flies away.

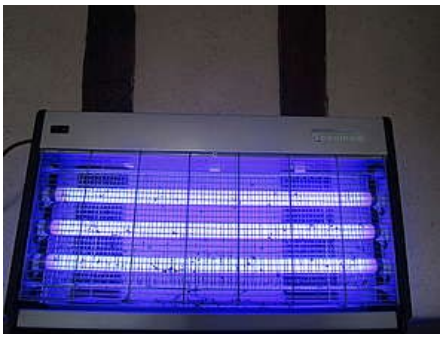
For buildings

Definitions

The term insect-repellent designates a plant, or a substance or product which repels insects. It can also be termed deterrent.

An insecticide concerns active substances or preparations which have the properties of killing insects, their larvae, and/or their eggs. A lot of insecticides are based on pyrethrins.

Insect disinfestation



Fluorescent lamp device against insects

- **Insecticide traps** in the form of **powder** to be placed as it is or diluted and painted on : these contain pheromones which atract insects and an insecticide. They must be placed out of reach of animals and children;
- **Fluorescent lamps** associated with a high voltage grid, or a sticky plate : the flies are attracted by the light, and are then either burned or get stuck;
- **Ultrasound systems** which act on the insect's nervous system, but not on that of horses(!);
- **Insecticidal paint** to be applied to walls, whitewash insecticidal paint (repellant colours such as blue);
- **Smoke grenades** can be used in empty silos and in closed and empty buildings, buildings should then be well ventilated before putting animals back inside;
- **Various other traps, such as adhesive tape** (sold in 400m reels).

Biological insect control

- Introducing **natural predators** of the species to be eliminated, and placing these in places where eggs are laid, this associated with coherent breeding practices;
- **Essential oils, natural repellents** to be diffused in the environment (lemongrass, teatree);
- **Active ventilation of buildings** (chases away houseflies, and culicoides).

On the animal

- **Flysheets, or combo flysheets**, which allow **air flow** but protect the horse from insects from head to tail, sometoimes even the limbs (latest products)- soùetimes a must for horses suffering from SSRD (sweet itch);
- **Various types of fringe fixed to the headcollar**, **or fly masks** which can be used out in the field or when ridden;
- **Products to apply** :
    - Insect-repellent shampoos, liquids, sprays, roll-ons, or even pour-ons (to be poured along the backbone, but be careful as these often do not have a marketing autorisation for horses);

- Products to be applied more or less frequently depending on the product used (according to the molecule used and its dosage, the context (work, field or hacking) and the weather conditions;
- Some strong products can create sensitivities (they should be tested on a small area to avoid massive allegies), or can react with the sun (photosensitivity);
- The efficiency of different product is variable, and their smell is sometimes significant !

- **Collars, like flea collars**, placed around the neck give contreversial results.
- **Organic insect control : essential oils** (eucalyptus, lemongrasss, geranium, lavander, teatree...) some will neutralise the smell of sweat and confuse insects...- **natural repellents** in the environment (Pyrethrum) or to be ingested (garlic).

Note : Remember to use a repellent when riding (substance appropriate for human use) otherwise the horse may be insect-free, but the rider will be covered in flies !

- **Specific control of botflies** :
  - **Remove eggs frequently** from the horse's limbs (with a botknife, razor or warmed white vinegar) to avoid ingestion of the eggs through licking;
  - **De-worm** at the end of Autumn with aa effective molecule against bots **(ivermectin or moxidectin)**.

Grazing horses with fly masks
Protection masks against

Lemongrass collar on a horse out at grass
Insect repellent collar

Feggs on a fore limb

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