

# BİYO-GÖKOVA

**SGP** GEF  
Küçük Destek  
Programı  
Türkiye

Proje Sahibi:



Proje Ortağı:



Katılımcılar:



## Do You Breed



## Mosquitoes?

We live in a very beautiful region:

Our plain, surrounded by mountain slopes and made out of sediments transported by our rivers through centuries, is very prosperous. The wonderful place we live in is also habitat to many different species of animals and a rich wetland. As a tourism centre it is well known in Turkey and Europe.

**Unfortunately, when the weather gets warm, we aren't always happy because the mosquitoes bother us.**



As you might know, the conventional battle against mosquito is fought generally on request of the local residents. And the local administration has to comply. Normally measures are taken in the extremely mosquito active months April- October by spraying a mixture of fuel oil and insecticides.

Unfortunately, this conventional “mosquito battle” with different chemicals, hasn’t led to satisfying solutions.

**Because:**

1. It isn’t economical; the “fuel method” is expensive.
2. The mosquitoes become immune with time, success is reduced successively
3. The chemical substances are dangerous for people, they cause cancer.
4. The slow decomposition of the chemicals leads to pollution. Even if it has a small effect in fighting mosquitoes, it does kill harmless and useful insects, as well as the natural enemies of the mosquitoes, frogs, lizard etc.

Besides, to what degree does this method really control mosquito populations? There is a very simple answer for this problem: **Quite little!** But the harm this procedure does to the environment and to people is : **Very much!**

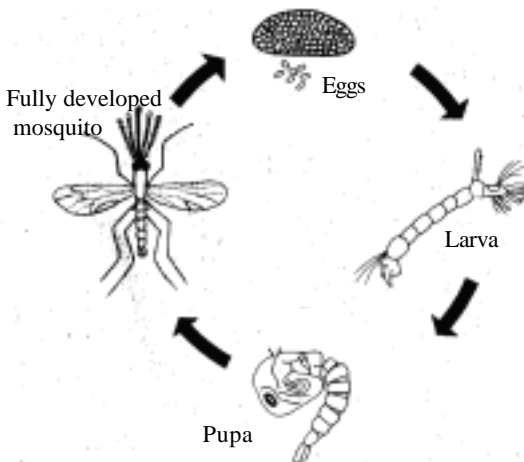
**Enough!** We should set an end to get sprayed with fuel and insecticides. We shouldn’t demand controlling mosquitoes with antiquated methods from our local administrations.

Let’s do something against the ones who do it.

Giving primary consideration to human health we are suggesting an effective fighting programme which does not harm birds, fish, plants, beetles and the whole environment.

**For this reason we should learn more about the mosquitoes' way of life, only then can we start fighting.**

## **A mosquito life is completed in four single processes:**



\* The development of the eggs, the larva and the pupa is completed in the water. This happens in shallow (less than 60 cm), still, warm water. Mosquitoes reproduce fast. A female mosquito lays 200 -400 eggs each laying time.

\*The mosquito spends the winter as egg, larva, pupa or young animal. This means that success is higher to fight mosquitoes in the wintertime where their number is low.

\*The mosquitoes spend a large part for their life cycle as a larva in the water. For this reason fighting larvae is of great importance.

\*The number of mosquitoes can increase speedily in short time, they can fly 2 -3 km and live up to 2 months on average.

The females can only develop their eggs with the help of drawn blood and then they start the same cycle once more. Only the female mosquito needs the protein out of our blood to develop the eggs. Also, by sucking blood various illnesses can be transferred. The probably best known illness is malaria. It is solely transferred by the Anopheles mosquito which has to sting a person infected with malaria before as a first step. Malaria is a parasitical and contagious disease. But viral diseases such as AIDS cannot be transferred by mosquitoes.

The mosquito swarms which can be seen in the evening consist of male mosquitoes. They don't suck blood. Instead of the pipette the females have, the males have an aerial like facial extension.

Anyway mosquitoes don't move the whole day but have two flying times daily. They fly at dawn and at dusk. One should protect himself from them during these times.

In context of the Biyo-Gökova project, the Project Research Group (PAG) consisting of different experts we have found out where exactly the mosquitoes lay their eggs in the Gökova area and where their favoured breeding grounds are.

It turned out that their most ideal breeding places are not in the wetland or in the river region but in our houses, our gardens and swimming pools!

The places in the wetland aren't ideal for mosquitoes to lay eggs; flowing water, shade, cool water ...

**These aren't good conditions for breeding.**

In addition, particularly in summer, the still waters of the wetland shelter many of **natural mosquito enemies**; frogs, fish, lizards, beetle larvae, birds etc..

Of course it cannot be denied that mosquitoes shelter in the reed but they do not breed there because it is too shady in the reed beds. By burning the reed new breeding possibilities are offered by warming the water. When stubble and sesame fields are burned, the natural hedges as well as thorny bushes are usually burned, too. But these are the habitats of different bird species and natural mosquito enemies who nest there and feed on mosquitoes.

**If we don't want to have mosquitoes in Gökova, we should not burn reed, hedgerows and bushes.**

Coming to our properties, our homes, the places we live and work. We do share them with mosquitoes for the most part! We usually are not consciously promoting their breeding! But we also do nothing to drive them away!

According to our research, we “welcome” mosquitoes in tourist resorts and luxurious holiday homes, in our gardens and stables!

As you remember the mosquitoes can leave their eggs e.g. in empty boxes, car tires even footprints of cows in soft soil, everywhere, where there is a little water.



Swimming pools in which some water is left over the winter months are an ideal breeding place for millions of new mosquitoes.

**We do need your co-operation for an effective, healthy and active mosquito fighting.**



**So:**

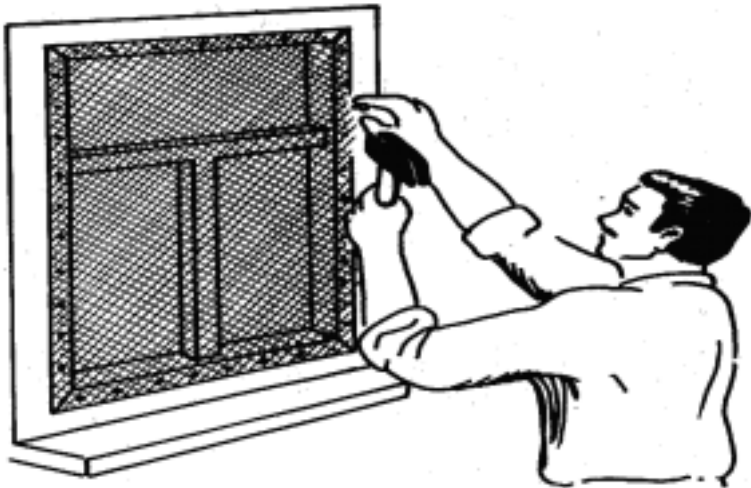
What you have to do is very simple, however, of great effect. It is a contribution to us and to the region and will decrease the number of mosquitoes a great deal. We like to banish the fuel method from our villages and not suffer any more from the effects, particularly for our children and naturally, also for our own health.



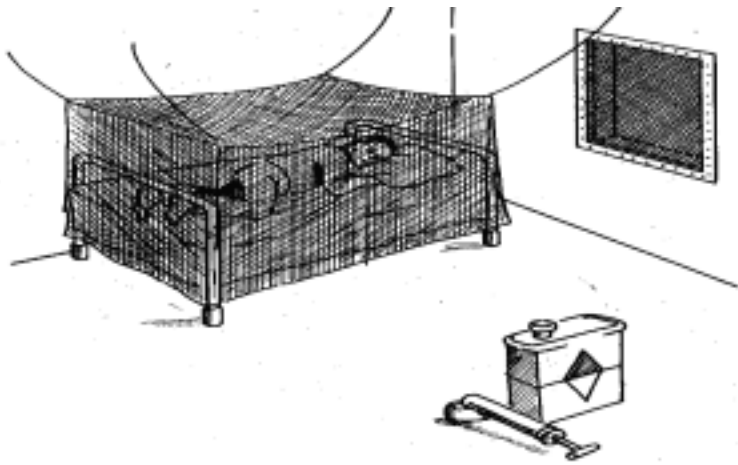
First we would like to give advice to what we can do without using insecticides. To stop the reproduction of mosquitoes the most important precaution is:

## **Physical/mechanical fighting** **(Permanent precautions)**

1. You can put yellow light bulbs in your house and on your terrace. It has a repulsive effect on mosquitoes.
2. If you don't use your swimming-pool any more, you should either cover it to produce shade, prevent water to go in or drain the water completely and keep the pipes open.
3. If window and doors aren't provided with a mosquito-net, they shouldn't be opened.

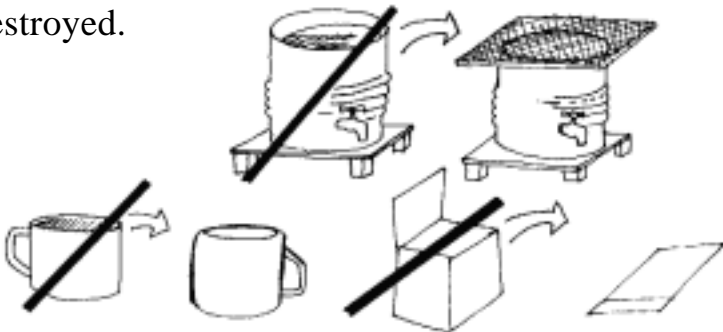


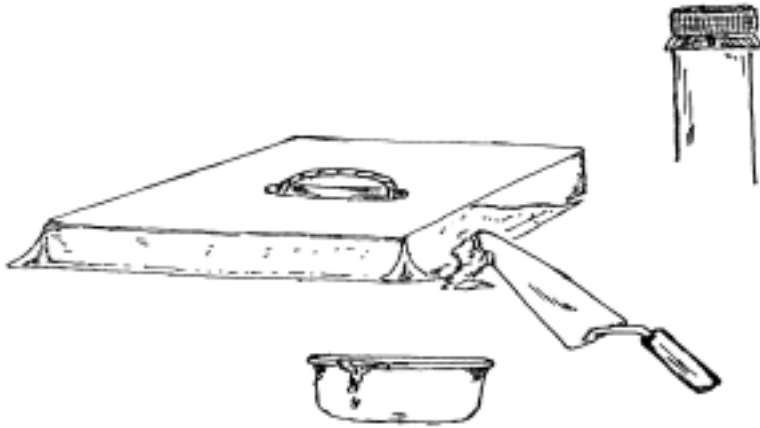
4. You can particularly use great mosquito-nets for the cots. Don't forget, insect sprays are poisonous for insects and for your health.



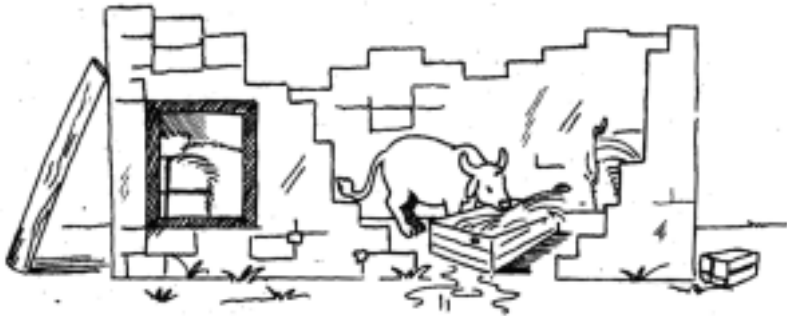
5. In your garden you should take care that water is not collected anywhere (swimming-pools, water reservoirs, buckets, under faucets). There where it is necessary, the water should be changed every 2-3 days, because even in the smallest stagnant water mosquitoes still can lay their eggs. Thousands of mosquitoes can arise from half a bucket of water. Also draw the attention of your neighbours to it. Their mosquitoes can fly also into your house.

Vessels, in which water can accumulate, must be well covered, emptied, put up-side-down or simply destroyed.





6. The septic tank has to be covered tightly. The mosquitoes find the smallest entrance and have an ideal place there to breed. The ventilation pipe has to be covered with a mosquito-net or tulle.



7 Check also cattle stables and chicken-coops on your property or in your garden. If chemical measures should be necessary, please get in touch with the municipality. Because young mosquitoes spend the day as well as the winter in empty buildings or in corners sheltered from the wind in the stables.

## **REPELLENT METHODS**

**(particularly effective in the morning- and evening hours)**

1. You can grow mosquito repellent plants in your garden or around your house. These would be: Sage, Pelargonium, Mint, Laurel, Rosemary, Marjoram, Lavender, Wormwood, Garlic and others.

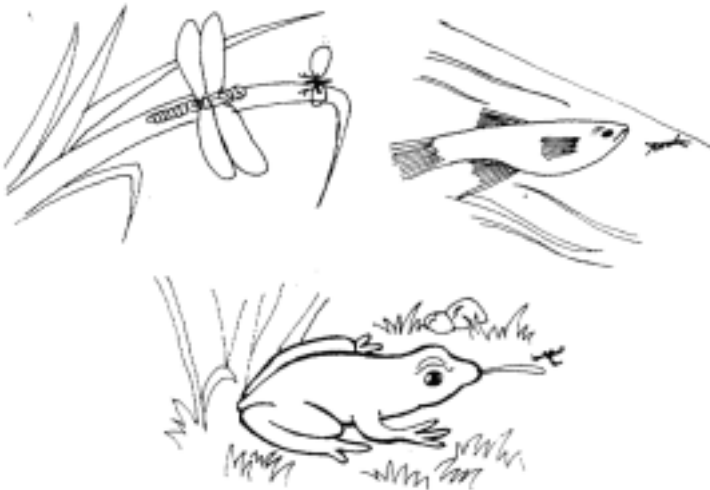
2. You should put on, particularly for the children, essential repellent oils instead of chemicals, like Autan, Kov or Sinkov. These are cheap and on the other hand more healthy: sage, eucalypt, lemon, cedar, pelargonium, bergamot etc., mixed with sweet almond-oil they are ready to be used.

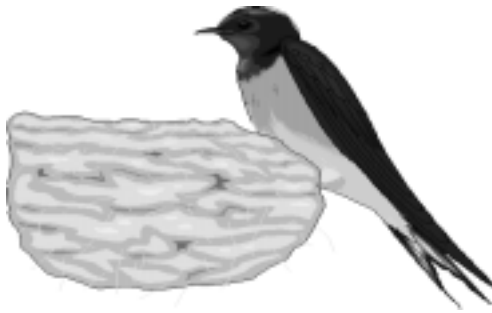


3. Shortly before the flying time of the mosquitoes starts, you can light spirals (Helozon) which you get in shops and pharmacies. The burning of 1-2 spirals is very successful on the terrace or in the garden. When the flying time is over, you extinguish and reuse them the next day.

## Protection and support of natural mosquito enemies

In the surrounding of our houses exists a variety of living beings which feed on mosquitoes and beetles. Protecting these animals means to protect yourself: frog species, lizard species, many species of spiders, chameleons, bats, beetles and their larvae (like dragonflies) living in the water, some fish and bird species (Swallow, Swift, Skylark, Great Tit, Bee-eater etc.) live nearly exclusively on mosquitoes or their larvae.





Birds hunting mosquitoes in the air are particularly useful. E.g. only 10% of the Bee-Eaters' food consists bees but as mosquito-killer they are very successful.

In addition, it is important to protect these species for our eye alone. By chemical fighting we also would kill the beautiful butterflies. Because of this we should actively support nature.

These species of animals are an important part of our life and the natural balance should not be disturbed. Because of this you should protect the natural enemies of mosquitoes!

This booklet has been prepared by the Project Research Group of the Friends of Gökova-Akyaka Association using the research results of the Biyo – Gökova Project and earlier booklets by the Ministry of Health.



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