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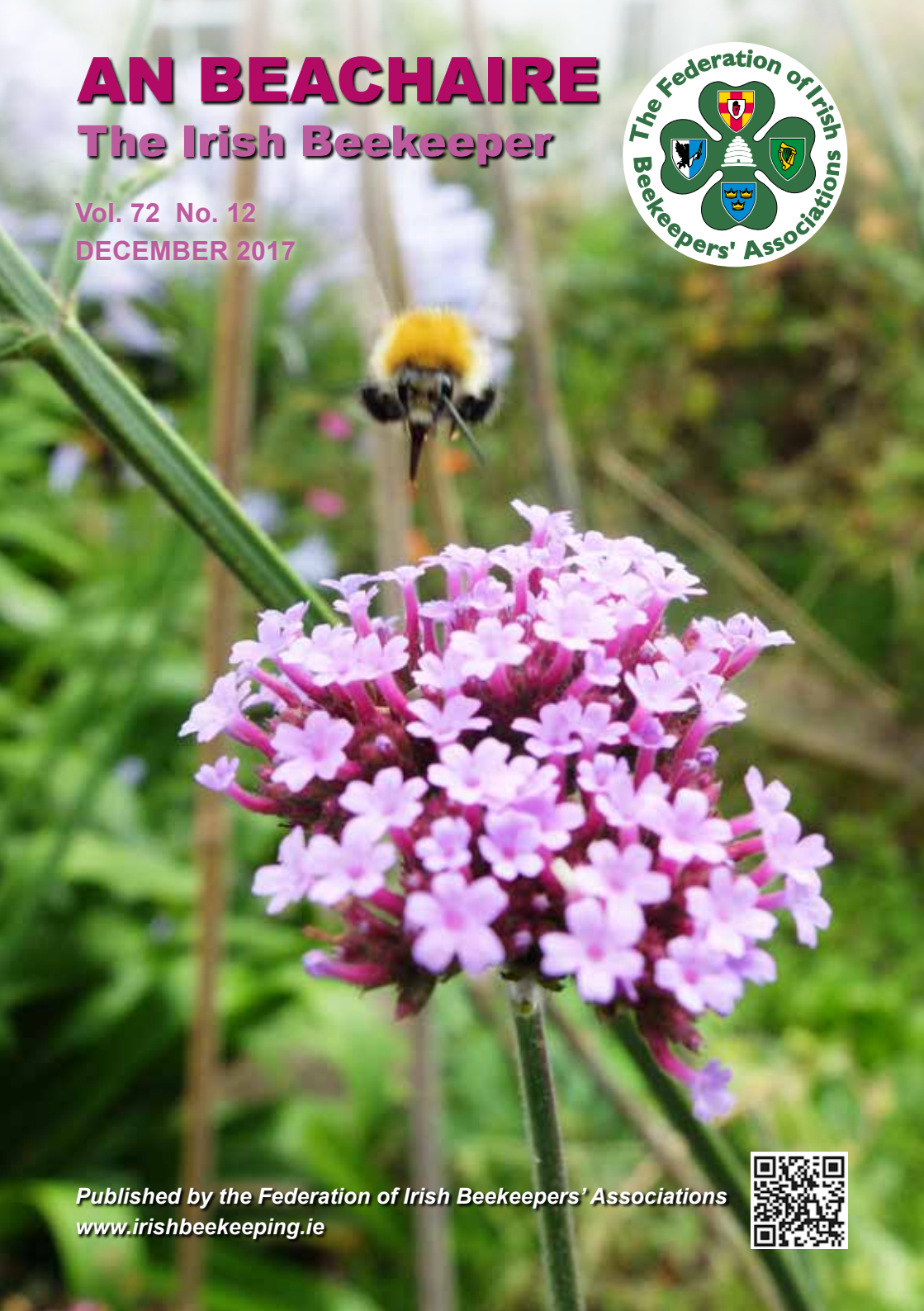

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# *Apivar:* the most recent authorised Varroacide

by Mary F Coffey

Apivar is the most recent varroacide authorised in Ireland by the Health Products Regulatory Authority and should be available for purchase by beekeepers early in the New Year. It is a slow acting insecticide, manufactured by Veto Pharma (www.veto-pharma.eu) which treats several reproductive cycles of Varroa and helps to minimise the risk of re-infestation. The active ingredient in Apivar is Amitraz and this chemical is impregnated in the plastic polymer strips which are designed to ensure the regular release of Amitraz onto the surface of the strip once in the hive. Apivar is therefore a contact insecticide and the product is only toxic to the Varroa mite when the mite comes in contact with the active ingredient. Once these polymer strips are placed in the colony, the bees crawl over the surface of the strips, they pick up small amounts of the active ingredient (Amitraz) and subsequently distribute it around the colony. Once the adult Varroa mites are exposed to the active ingredient, the nerve transmissions in their octopamine receptors are blocked. This causes paralysis in the Varroa mite and results in their inability to remain attached to the adult bee. The Varroa mites subsequently fall to the bottom of the hive, the paralysis prevent them crawling back up and they subsequently die of starvation.

***How Apivar is administered:***

The treatment is 2 polymer strips per colony. The strips should be positioned vertically in the brood area/bee cluster. Place one strip two frames into the brood nest area with a minimum of two frames between the two strips. The "V" shaped die-cut helps to secure them in position (see figure 1).

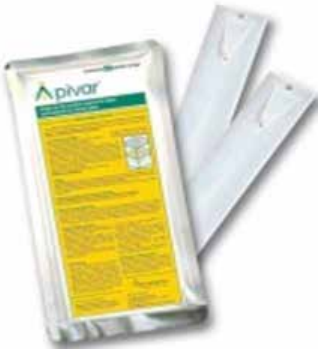


Figure 1 Apivar strips

***Duration of treatment:***

The strips should remain in the hive for 6 to 10 weeks. In general 6 weeks should be sufficient for colonies with small brood areas while colonies with large brood areas may need a maximum of 10 weeks. ***To avoid/delay the development of resistance, treatment time should not exceed 10 weeks and in no situation should strips remain in the colony over the winter period.*** If strips become covered with propolis and/or wax at mid-treatment, it is possible to gently scratch the strips using a hive tool. On replacing them into the hive the strips can be repositioned and according to the manufacturers re-positioning can increase the efficacy of the product.

***Expected efficacy:***

97.74% (according to the manufacturers)



*(Cont.)*

***Treatment time:***
Apivar cannot be administered during a honey flow or when supers are on the colonies, hence Apivar is generally recommended as a Spring and/or Autumn treatment. Once the honey is harvested in the Autumn, Apivar can be administered immediately as there are no counter-indications for feeding colonies at the same time as Apivar strips are inserted into the hives. ***Apivar should not be used as a winter treatment*****.** Ambient temperature does not directly affect the efficacy of Apivar, however low temperatures reduces the activity of bees within the colony and may result in fewer contacts with the strips, hence reducing the efficacy of the product.

***Disposal of the strips:***
Used strips should be disposed of in accordance with the instructions and local regulations and the product should not enter watercourses. Regulatory requirements vary from location to location, so check with your local authority.

***Shelf life and storage*****:**
Shelf life of Apivar as packaged for sale is 2 years. Unused product once opened should be discarded. Product should not be stored above 30°C and should not be exposed to sunlight.

The information above indicates that Apivar has the potential to effectively control the Varroa mite and subsequently help to reduce winter colony losses. However as with all treatments in addition to the advantages of this treatment they are potential disadvantages, namely residues, resistance and slowing down the process of natural selection.

Amitraz is fat soluble but is unstable and hydrolysis quite quickly forming 3 degradation products referred to as metabolites. Residues of Amitraz are rarely found in honey but some studies though not all have reported Amitraz metabolites in wax. The potential negative impact of low levels of the active ingredient in the wax is the development of resistance. In the literature, data on the development of resistance is not consistent. Resistance to Apivar has been reported in US, Italy, Portugal, Argentina, Algeria and Spain, while in France, although Apivar has been registered since 1995, an efficacy of 99.5% and 98.4% was reported in 2007. In 2016, an efficacy of >90% was reported in Canada and is now used extensively by beekeepers.

In Ireland, the efficacy of Apivar has not been tested and although no Amitraz based products have been previously authorised in Ireland a small percentage of beekeepers have reported using Amitraz based products in the recent COLOSS survey. Furthermore, the importation of bees which have been previously exposed to Amitraz/Apivar may also speed up the development of resistance. Therefore, as beekeepers we need to remain vigilant and thus if this method of Varroa control is adopted by the beekeepers, monitoring for Apivar resistance will be necessary, thus ensuring that the Varroa mite population is being controlled effectively, thus minimising winter colony losses

*The mention of the trade name Apivar in this article is solely for the purpose of providing specific information and does not imply recommendation or endorsement.*