

## Validation of the VITA<sup>®</sup> EFB Test Kit for the diagnosis of European foulbrood

### **Introduction**

In the course of the years 2004-2005 the laboratory of Institute concerned has tested the VITA<sup>®</sup> EFB Diagnostic Test Kit, validating its suitability for use in the diagnosis of cases of European foulbrood in bees recovered from the Italian territory. Samples of brood sent to us from beekeepers have been analysed to complete this validation.

### **Method**

The VITA<sup>®</sup> EFB Diagnostic Test Kit was used in 17 cases where the death of the bee brood was symptomatic of European foulbrood or when the exact cause of death was not straightforward to interpret. To the ends of the validation, it turns out you of the kit have been compares with those obtained with the method standard to you (OIE) applied to the same champions.

Every champion, represented from a brooded honeycomb of, came from a stream bed. They have been subordinates to test larve with pathological symptoms of various age (L4-5, propupe, pupa), of color variable (whitish, yellowish, tawny) and flabby, watery, pastosa, collosa consistency variable (, flake). For every champion they have been you execute yourself from one to 10 Tests.

### **It turns out to you**

The table 1 filler the outcome of the diagnostic appraisals executed in the course of biennium 2004-2005. In some cases of uncertain classification or of it suspects infection turns them, the champions have been sendes you to the laboratory of microscopy electronic of the Zooprofilattico Institute of Brescia, that it has verified the presence of infections anti turns them by means of techniques of Immuno-elettro-Microscopia (ISEM) with iper-immune serum APV.

Table 1

CHAMPIONS (stream beds)	Month	DIAGNOSIS CLINICAL	DIAGNOSIS LABORATORY INA		ANALYSIS. VIROLOGICA IEM (IZS Brescia)
			Conventional	EFB kit	
04/1-A Siena	Apr	EFB	EFB	+	Not executed
04/1-B Siena	Mag	EFB	EFB	+	Not executed
04/2 Siena	Mag	EFB	EFB	+	Not executed
04/3 Aosta	Mag	EFB	EFB	+	Not executed
04/4 Siena	Down	EFB	EFB	+	Not executed
04/5 Reggio and.	Down	?	?	-	-
05/1 Aosta	Apr	EFB +	EFB	+	+

		sacbrood			
05/2-A Torino	Mag	EFB	EFB	+	Not executed
05/2-B Torino	Mag	EFB	EFB	+	Not executed
05/2-C Torino	Mag	EFB	EFB	+	Not executed
05/3 Torino	Mag	EFB	EFB	+	Not executed
05/4 Sassari	Mag	?	?	-	+
05/5 Torino	Mag	EFB	EFB	+	Not executed
05/6-A Pavia	Mag	EFB + sacbrood	EFB	+	+
05/6-B Pavia	Mag	EFB	EFB	+	
05/7 Mantova	Lug	?	?	-	Not executed
05/8 Cremona	Needle	sacbrood	?	-	Not executed

Table 2 reassumes turns out obtained to you in 2004 and in the 2005 from the application of the test to stream beds it infects from European plague. It turns out to you positi to you or denied they come distributed to you based on phase of development of larva the subordinate to examination (opened - opercolata)  
Table 2

CHAMPIONS	LARVE OPENED		LARVE OPERCOLATE.		TOTAL EXAMINED LARVE
	N° positi to you	N° denied to you	N° positive you	N° denied to you	
04/1-A	1	0	0	1	2
04/1-B	4	0	1	4	9
04/2	1	3	0	2	6
04/3	3	0	2	3	8
04/4	6	0	2	2	10
05/1	1	0	0	0	1
05/2-A	4	1	1	0	6
05/2-B	1	0	<i>Not executed</i>		1
05/2-C	1	0	<i>Not executed</i>		1
05/3	3	3	<i>Not executed</i>		6
05/5	0	1	1	0	2
05/6-A	2	0	<i>Not executed</i>		2
05/6-B	1	1	<i>Not executed</i>		2
<b>TOT</b>	<b>28</b>	<b>9</b>	<b>7</b>	<b>12</b>	<b>56</b>

### Conclusions

Kit VITA® EFB Test has demonstrated one valid instrument for the diagnostic confirmation of the European plague.

For how much it concerns the possibility to obtain is made denied you from the Test, the data brought back in table 2 indicate that age examinee the larve disopercolate (the 3-5 gg) relationship positive you/denied are approximately 3:1, while the greater one pate of the larve opercolate damage negative answer to the Test (equal relationship positive/denied to you to you to approximately 1:2). Therefore the Test is applicable priority to the open brooded one, using larve of 4-5 days of age and with obvious symptoms of disease. In order to increase to the ability to survey of the Test, reducing the risk it is made denied you to a statistically acceptable level, is sufficient to analyze 3 larve for champion. The larve they can also essre dealt with the same one kit, omogeneizzandole in the same solution (on the base of preliminary tests is advised against to use more than 3 larve for single kit, to the aim to avoid the risk to inficiare the reliability of the reading).

Second operating the criteria exposed over, EFB Test has given always turns out to you agrees regarding the conventional analytical method, like evidenced in table 1. In conclusion, holding in consideration the advantages in terms of rapidity, think that EFB Test is suitable to not only uses it in field but also in the laboratory controls.

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Emanuele Carpana