Eradication: Final report for Bluetongue 2018

For each approved annual or multi-annual programme Member States shall submit to the Commission by the 30 April each year an annual detailed technical and financial report covering the previous year. That report shall include the results achieved and a detailed account of eligible costs incurred (Art 14 of Regulation (EU) No 652/2014).

This form is for information only, no submission possible.

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Reporting period

From: 2018 **To:** 2018 **Year of implementation:** 2018

1. Technical implementation of the programme

1.1 Description and evaluation of the evolution of the epidemiological situation, the technical implementation of the activities foreseen under the programme and the cost-effectiveness of the programme.

Bluetongue was detected in Hungary on 14 October 2014 in Csongrád county. The Veterinary Diagnostic Directorate of National Food Chain Safety Office (NRL), with the contribution of the Community Reference Laboratory for bluetongue in Pirbright, United Kingdom, confirmed the presence of serotype 4 (BTV-4). According to Article 2 (g) of Council Directive 2000/75/EC and Article 2 (a) of Commission Regulation (EC) No 1266/2007 if virus circulation was confirmed in the holding, a new case was declared and simultaneously the confirmation the first case in the holding a new outbreak was reported.

In 2014 the disease spread to five counties – Csongrád, Békés, Bács-Kiskun, Tolna and Baranya. In 2014, 77 outbreaks were confirmed totally.

In 2015 the disease spread to four new counties: Borsod-Abaúj-Zemplén, Győr-Moson-Sopron, Nógrád and Somogy. In 2015, 37 outbreaks were confirmed totally.

A) Control and eradication measures

After the confirmation and notification of the disease to the European Commission protection and surveillance zones were established in accordance with Council Directive (EC) 2000/75 and Commission

Regulation 1266/2007/EC. As new outbreaks occurred the protection and surveillance zones were further extended.

All suspect cases were immediately acted upon. Every suspicious holding was placed under official surveillance (including restriction of movement). Very few animals showed clinical signs so the most of the suspicions based on the positive laboratory results. Further samples for serology and virology were taken from the animals within the herd, using a sample size able to detect the disease of 5% prevalence with 95 % confidence.

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The following control measures were applied in 2014-2015:
- Movement restriction on the holding
- Disinfecting on the holding
- All viropositive animals on the holding were either killed or slaughtered in 2014. With the introduction of the vaccination policy in 2015 this was not applied anymore.
- Animals on the holding were treated with insecticides
- The holdings in a 3 km radius were screened (both serology and virology) with a sample size of the above mentioned prevalence and confidence.
- All holdings in a 20 km radius were placed under official surveillance
- The holdings in a 20 km radius were screened for clinical signs of the disease
- In 2015 all susceptible animals within the 20 km radius were vaccinated (after being screened)
- In a 1 km circle radius of the outbreaks terrestrial disinsection and treatment of vector breeding sites was applied

Movement of animals between established restriction zones (protection and surveillance zones) and the free zone followed was in line with Regulation 1266/2007/EC. Therefore animals form high risk areas were allowed to enter low risk areas only if specific criteria were met.

A decision of the Chief Veterinary Officer issued in March 2015 enabled vaccination against bluetongue. Only inactivated vaccines matching the bluetongue serotype were placed on the market and vaccination in the non restricted zones was prohibited. The vaccination strategy was composed of a mandatory and a voluntary part. Mandatory vaccination was carried out around new outbreaks. All susceptible domestic ruminants within a 20 km circle radius around the outbreaks had to be vaccinated. In 2015 around 310,000 animals were vaccinated by mandatory vaccination. Voluntary vaccination enabled animal owners to vaccinate their animals, if they wanted to protect their animals against the disease or if they wanted to transport their animals outside the protection or surveillance zone.

A Community Veterinary Emergency Team (CVET) mission took place in Hungary at the end of October 2015. The main recommendations were:

“d) Given the above conclusions, the vaccination of all susceptible cattle and small ruminants in Hungary is the best option to reduce the virus circulation in the territory and try to re-gain the free status.
e) The mass-vaccination strategy can be effective but the whole susceptible populations must be covered and the vaccination efforts applied for some consecutive years, till the achievement of at least two vector seasons without virus circulation.
f) In alternative to a mass-vaccination strategy, the actual choice of concentrating the vaccination activities only within 20 km radius around infected holdings should be revised, given also the sensitivity of the current surveillance in place and the absence of clinical signs, which do not allow to have an accurate and up-to-date picture of the true virus circulation in the country. At least, the size of the geographical under compulsory vaccination should be increased also taking into consideration other territories at risk (such as those bordering other infected countries not applying a vaccination strategy) and the results of entomological and serological surveillance.

g) Taking into account the apparent low morbidity and mortality registered in Hungary during 2015, random serological surveillance should be modified in order to increase the sensitivity of the whole system. Use of sentinel animals should be taken into consideration and also a higher frequency of testing (for example on monthly basis) should be performed during the vector season (from May to November). Surveillance efforts should be targeted to the areas with a major risk of BTV circulation spread on the basis of entomological knowledge and immunity levels in the animal populations.
h) The entomological surveillance should be reinforced, with more sites under surveillance and an enhanced frequency of Culicoides collection, to provide more useful indication on the areas at major risk of BTV circulation. Entomological catches should be performed also in selected outbreaks to better identify the vector species."

"j) In order to simplify the domestic animal movements within Hungary, the Hungarian veterinary

authorities should consider the possibilities of unifying the surveillance and protection zones in one unique restriction zone”

According to the relevant recommendations of the CVET the revision of our vaccination strategy was started after the CVET visit and the conclusion was that the vaccination of whole Hungary can be more effective only. However in the epidemiological situation in Europe regarding ASF (and that time regarding Lumpy skin disease) there was no enough money in the Hungarian budget to carry out the BTV4 vaccination of whole Hungary for several years. So the above mentioned CVO decision was modified in 2016. According to this modification, mandatory vaccination of susceptible animals will take place only in the outbreak holdings, but not in the surrounding holdings. Finally we would like to note that after 2015 we have not found any BT case till now, so it is also against to the vaccination in whole Hungary.

On 20 November 2015 the measures of protective zone was ordered for whole Hungary. So the two restricted zone unified to one restricted zone according to the relevant CVET recommendation.

On the basis of the relevant recommendation of the CVET team we have developed a new monitoring programme for 2016 instead of the programme submitted in April 2015 for co-financing. Practically the same programme carried out in 2017 and planned for 2018 as well.

C) Bluetongue surveillance programme in Hungary

The main objective of the surveillance programme is to monitor the temporal and spatial development of the disease within the susceptible animals in the country. It is also important aim to determine the seasonally vector free period in Hungary. Therefore our surveillance programme contains a surveillance in ruminants and an entomological surveillance as well.

Our surveillance programme in ruminants includes a general (passive) and a targeted (active) part as well. During the targeted (active) surveillance the cattle population is the target population, in case of passive surveillance all susceptible domestic ruminants, but few tests were carried in case of wild ruminants and zoo ruminants as well.

C.1) Passive (general) surveillance in ruminants

Hungarian and European legislation in force ensures that owners or keepers of animals as well as veterinarians must report immediately any suspicion of bluetongue to the competent authority. All suspected cases of bluetongue must be investigated.

It has to be noted, that BTV-4 infection during 2014 and 2015 resulted only in mild clinical signs in few affected animals. Therefore we have strengthened the passive surveillance with the virological (PCR) investigations of organ and blood samples originated ruminants, sent to the NRL for other reasons (for example suspects for other notifiable animal diseases or due to abortion).

C.2) Bluetongue targeted (active) surveillance programme in ruminants

A risk based targeted surveillance was started at the end of 2014. On the basis of the relevant recommendation of the Community Veterinary Emergency Team (CVET) we have developed a new monitoring programme for 2016, 2017 and 2018.

C.2.1. Rules for targeted surveillance in ruminants at the end of 2014 and in 2015

A risk based surveillance programme was started at the end of 2014 (and carried out during whole 2015) to monitor the spread of the disease. This programme had two parts:
- a serological surveillance according to point 3 of of Annex I of Commission Regulation (EC) No 1266/2007 (ELISA tests), and
- over the serological surveillance a serological and virological surveillance around the confirmed outbreaks (ELISA and PCR tests simultaneously).

In the serological surveillance the geographical unit was the county and the sampling was carried out quarterly (4 times per year). In case of bigger counties the sample size was proportionally more than in case of the smaller ones, but the quarterly sample number was enough to detect at least 5% prevalence with 95 % confidence in case of each county. (Each county was divided into about 2000 km2 subunits and 59 cattle were sampled quarterly per subunits.) For whole Hungary the target sample size was 2716 quarterly, so it was 10864 samples yearly.

C.2.2. Rules for surveillance in ruminants since 2016

As it mentioned in Chapter 3, on the basis of the relevant recommendation of the Community Veterinary Emergency Team (CVET) we have developed a new monitoring programme for 2016 instead of the programme submitted in April 2015 for co-financing. Practically the same programme carried out in 2017 and 2018 as well.

The National BT Expert Group has taken into consideration the introduction of the sentinel programme as the first option, but finally did not recommend because of the practical difficulties. According to the recommendations of CVET and the national Expert Group our monitoring programme was significantly modified. The modified surveillance programme - a combination of serological/virological surveys according to point 2.2. the Annex I of Commission Regulation (EC) No 1266/2007 - started in 2016 and continued in 2017. The programme planned for 2018 is very similar to the programme carried out during the previous two years.

The geographical (sampling) unit was the county according to the last indent of point 1 of point 1 of Annex I of Commission Regulation (EC) No 1266/2007. The sampling was carried out in monthly basis. The monthly sample number was various (between 60 and 126samples by counties depending on the size of the county, the geographical circumstances and the animal density (between 60 and 126), so the monthly sample number was enough to detect at least 5% prevalence with 95 % confidence in case of each county.

The main philosophy of the programme was, on the one hand, that the involved herds must cover whole territory of Hungary and not only the parts where higher number of cattle are kept. In order to achieve this goal at least one herd must be selected for sampling per veterinary districts. In the case of bigger counties more herds had to be designated in areas with higher density of cattle or where the risk was higher. Due to this reason the number of herds involved in the programme (112) iwas higher than the number of veterinary districts (82, or after 1 July 2017, 81). It is important that the role of the veterinary districts was only to ensure the geographical coverage, so these are not geographical (sampling) units!). On the other hand, the other significant idea of the programme is that testing the same herd during the whole year will show the change of the epidemiological situation better than changing the involved herds during the programme.

In practice 112 (large scale) cattle farm selected from the 82 (after 1 July 2017, 81) veterinary districts located in the country. Animal density and closeness to water sources was taken into account while selecting the farms. In each farm 14-15 animals would be sampled once per month from April to November (during the vector season). The rationale behind this is that due to the wide spread of the disease and the affects of the previous mandatory vaccination around the outbreaks serology does not always provide sufficient information on the actual virus circulation. Furthermore in 2015 we found several BT cases when the infected animal was PCR positive, but ELISA negative. It means that several new cases would be undetected without simultaneous PCR tests. Therefore virology samples were taken together with serology.

As it mentioned earlier in case of bigger counties more herds selected and therefore the monthly sample number of the county was higher. For example in the smallest counties (under 3450 km2) 4 herds involved to the programme, and 15 cattle sampled in each herd in each month between April and November. The number of the involved herd was increased depending on the size of the county. The rule was the following: one more herd added to the programme by 1000 km2, but not more herds involved to the programme than twice the number of veterinary districts. For example in case of the biggest county of Hungary, Bács-Kiskun county (that size is over 8000 km2) the sampling was carried out in 9 cattle herds in each month. The county CVO made a decision on the herds involved the BT surveillance programme, but she/he must keep the rule that at least one herd must be tested in each veterinary district. If more herds involved than the number of the veterinary districts she/he decided about the ”plus herds” taking into consideration higher density of cattle or higher risk. Therefore all decision made in county level and in veterinary district level only the practical work are carried out.

In Hungary there are 19 counties, but Budapest as a capital of Hungary has a county rank and so has a county level administration. The 19 county government offices and the one Capital Government Office mean the territorial level of state administration. However in case of food chain control, including animal health and food safety (hereinafter veterinary authority) the Pest County Government Office is the competent authority for Budapest as well, and not the Capital Government Office. So in case of veterinary programmes for Pest county covers Budapest as well. (Otherwise Budapest is not only the capital of Hungary, but it is the capital of Pest county as well.) So the programme covered the whole area of Hungary, Budapest is included of the programme for Pest county.
Each county divided administrative districts and each administrative district has a district office, it means the local level of the state administration in Hungary. The district offices are the local bodies of the county (or the capital) government office. However there is no food chain control unit (including veterinary authority) in each district government office. The veterinary district means the administrative districts belongs to the same district office with veterinary authority. We attached a map to this document about the all administrative districts of Hungary and in this map we signed the administrative districts with veterinary

authority and the numbers of the veterinary districts. We have to note that after the last modification of the Government Regulation No 383/2016 .(XII.2.) on the designation of bodies in charge of managing agricultural official and administrative tasks, the number of the veterinary districts in Veszprém county has been decreased from 5 to 4 as of 1 July 2017. So from 1 July 2017, there are 81 veterinary districts in Hungary (instead of 82).

C.3. Entomological surveillance

The entomological surveillance started after the confirmation of the first outbreak at 14th October and is continuing to present day.

C.3.1. Rules for entomological surveillance

Vector monitoring aims to identify the genus and species of the insects captured with mosquito traps (Mosquito Trap M3). This was conducted throughout the year with a one trap per county. Generally samples were taken one per month, but this frequency is increased in March, April, November and December to once per week. The traps operated from early afternoon till dawn. The trapped midges were collected, and transported to the NRL, where the vector species was determined. It is very important that Culicoides imicola never detected in Hungary. The main role of the entomological monitoring in our surveillance programme was to determine the seasonally vector free period in Hungary.

D) Results

The last BT outbreak in Hungary was confirmed on 23 November 2015, more than 40 month ago.

After studying the results of our surveillance programme during the last three year we can note that the almost 96% of the PCR positive results found during the targeted (active) surveillance and only about 4% of the PCR positive results detected in the frame of the enhanced general (passive) surveillance. Therefore we can only draw reliable conclusions from the comparison of the yearly results of targeted (active) surveillance regarding the bluetongue virus circulation. During the targeted surveillance programme in case of all susceptible species:

- in 2015 from 10748 PCR tests 361 were positive, and from 17165 ELISA tests 2523 were positive
- in 2016 from 12740 PCR tests only 2 were positive (retesting form 2015), from 12915 ELISA tests 671 were positive
- in 2017 12812 PCR tests wre done without positive result and from 12482 ELISA tests 571 were positive (in the target species (cattle)12204 ELISA tests 523 were positive)
- in 2018 13010 ELISA tests were done in cattle (excluding the re-testing due to seropositive results and 104 were positive.

In case of serological investigation the percentage of seropositivity is significantly decreased in 2016 (5,20 %) and 2017 (4,57 %) in comparison with 2015 (14,70 %). Furthermore in 2018 the seropositivity has been decreased further, during this period it was only 0,79 %.

Despite the fact that significantly more PCR tests were done in 2016 during the targeted surveillance than 2015, only 2 positive results were found in January 2016 and these samples originated for the retesting of animals given positive results in 2015. In addition, the percentage of PCR positive results in 2015 was extremely higher (3,59 % in cattle and 3,36 % in all domestic ruminants) than in 2016 (0,02 %). Furthermore in 2017 and (until now) in 2018 there were no PCR positive results, so the last positive PCR test was detected more than 38 months ago.

So these results clearly demonstrate that there has been no evidence of virus circulation in Hungary during the last two years, including two full seasons of vector activity.

1.2 Details on the level of achievement of the targets set in the approved programme and technical difficulties.

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In case of serological investigation the percentage of seropositivity is significantly decreased in 2016 (5,20 %) and 2017 (4,57 %) in comparison with 2015 (14,70 %). Furthermore in 2018 the seropositivity has been decreased further, during this period it was only 0,8 %. Technical difficulties: Not only sentinel animals were tested for BT in November and December.

Despite the fact that significantly more PCR tests were done in 2016 during the targeted surveillance than 2015, only 2 positive results were found in January 2016 and these samples originated for the retesting of animals given positive results in 2015. In addition, the percentage of PCR positive results in 2015 was extremely higher (3,59 % in cattle and 3,36 % in all domestic ruminants) than in 2016 (0,02 %). Furthermore in 2017 and (until now) in 2018 there were no PCR positive results, so the last positive PCR test was detected more than 38 months ago.

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1.3 Epidemiological maps for infection and other relevant data on the disease/activities (information on serotypes involved,...) (Please attach files of data using the PDF attachement feature) Use the textbox below to provide clarifications for the maps you attach, if needed.

The last BT outbreak in Hungary was confirmed on 23 November 2015, more than 40 month ago.

2. TECHNICAL IMPLEMENTATION ON BLUETONGUE PROGRAMMES

VERY IMPORTANT: Please fill out the following tables with figures corresponding to measures performed during the implementing period (1/1 to 31/12).

Table A - DATA ON HERDS

Table A is not to be filled in for Bluetongue

Table B - DATA ON ANIMALS

Region	Animal species	Total number of animals	Number of animals under the programme	Number of animals to be tested under the programme	Number of animals tested	Number of animals tested individually	Number of positive animals	Number of outbreaks
Baranya	Cattle	34,264	630	630	548	548	0	0
Borsod-Abaúj-Zemplén	Cattle	51,941	1,008	1,008	1,012	1,012	0	0
Bács-Kiskun	Cattle	88,360	1,134	1,134	754	754	0	0
Békés	Cattle	69,448	882	882	825	825	0	0
Csongrád	Cattle	46,306	630	630	461	461	0	0
Fejér	Cattle	53,368	630	630	588	588	0	0
Győr-Moson-Sopron	Cattle	58,203	630	630	628	628	0	0
Hajdú-Bihar	Cattle	121,317	882	882	994	994	0	0
Heves	Cattle	18,182	630	630	450	450	0	0
Jász-Nagykun-Szolnok	Cattle	64,642	882	882	951	951	0	0
Komárom-Esztergom	Cattle	16,960	540	540	557	557	0	0
Nógrád	Cattle	22,259	540	540	300	300	0	0
Pest	Cattle	65,679	1,008	1,008	1,065	1,065	0	0
Somogy	Cattle	43,788	882	882	745	745	0	0
Szabolcs-Szatmár-Bereg	Cattle	51,322	882	882	661	661	0	0
Tolna	Cattle	29,715	540	540	510	510	0	0
Vas	Cattle	31,490	540	540	555	555	0	0
Veszprém	Cattle	47,217	756	756	776	776	0	0

Zala	Cattle	31,179	630	630	616	616	0	0
Total		945,640	14,256	14,256	12,996	12,996	0	0

Table C - DATA ON VACCINATION PROGRAMMES

Region	Animal species	Total number of herds	Total number of animals	Serotype	Number of herds in vaccination programme	Number of herds vaccinated	Number of animals vaccinated	Number of doses of vaccine admini-stered	Number of adults vaccinated	Number of yound animals vaccinated	Number of animals with primary vaccination (initial+ booster)
Total		0	0		0	0	0	0	0	0	0

Table D - DATA ON STATUS OF HERDS AT THE END OF THE PERIOD

Table D is not to be filled in for Bluetongue

Table E - SUSPENSION/WITHDRAWL OF THE FREE OR OFFICIALLY FREE STATUS

Table E is not to be filled in for Bluetongue

Table F - STRATIFIED DATA ON SURVEILLANCE AND LABORATORY TESTS

Region	Animal species	Number of samples	Test type	Number of tests	Number of positive tests
Baranya	Cattle	548	Elisa test	548	5
Baranya	Cattle	548	PCR test	548	0
Borsod-Abaúj-Zemplén	Cattle	1,012	Elisa test	1,012	2
Borsod-Abaúj-Zemplén	Cattle	1,012	PCR test	1,012	0
Bács-Kiskun	Cattle	754	Elisa test	754	10
Bács-Kiskun	Cattle	754	PCR test	754	0
Békés	Cattle	825	Elisa test	825	4
Békés	Cattle	825	PCR test	825	0
Csongrád	Cattle	461	Elisa test	461	1
Csongrád	Cattle	461	PCR test	461	0
Fejér	Cattle	588	Elisa test	588	0
Fejér	Cattle	588	PCR test	588	0
Győr-Moson-Sopron	Cattle	628	Elisa test	628	3
Győr-Moson-Sopron	Cattle	628	PCR test	628	0
Hajdú-Bihar	Cattle	994	Elisa test	994	1
Hajdú-Bihar	Cattle	994	PCR test	994	0
Heves	Cattle	450	Elisa test	450	0
Heves	Cattle	450	PCR test	450	0
Jász-Nagykun-Szolnok	Cattle	951	Elisa test	951	2
Jász-Nagykun-Szolnok	Cattle	951	PCR test	951	0
Komárom-Esztergom	Cattle	557	Elisa test	557	1
Komárom-Esztergom	Cattle	557	PCR test	557	0
Nógrád	Cattle	300	Elisa test	300	5
Nógrád	Cattle	300	PCR test	300	0
Pest	Cattle	1,065	Elisa test	1,065	1
Pest	Cattle	1,065	PCR test	1,065	0
Somogy	Cattle	745	Elisa test	745	32
Somogy	Cattle	745	PCR test	745	0
Szabolcs-Szatmár-Bereg	Cattle	661	Elisa test	661	24
Szabolcs-Szatmár-Bereg	Cattle	661	PCR test	661	0
Tolna	Cattle	510	Elisa test	510	1
Tolna	Cattle	510	PCR test	510	0
Vas	Cattle	555	Elisa test	555	1

Vas	Cattle	555	PCR test	555	0
Veszprém	Cattle	776	Elisa test	776	8
Veszprém	Cattle	776	PCR test	776	0
Zala	Cattle	616	Elisa test	616	3
Zala	Cattle	616	PCR test	616	0
Total		25,992		25,992	104
			Methods of laboratory analysis	**Total number of tests**	
			Total - Elisa test	12,996	
			Total - PCR test	12,996	

COMMENT / ADDITIONAL CLARIFICATION

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