Foot and Mouth Disease Eradication in Former Czechoslovakia

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Abstract

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In former Czechoslovakia after the Second World War foot and mouth disease (FMD) was widely spread causing enormous losses to animal production. First reliable data were from 1952 when the FMD was reported in 5,912 villages with 316,997 diseased and 23,112 dead animals. Following a very demanding anti-FMD programme, panzootic occurrence was gradually reduced to sporadic cases and finally to the eradication in 1975. During 1952-1975 there were reported 8,898 new FMD outbreaks (villages). Anti-FMD protection measures, eradication strategy and methods are described. The eradication was achieved mainly thanks to strict measures for avoiding FMD introduction from abroad, animal population health protection including FMD vaccination of threatened populations (annual ratios vaccinations/cattle population oscillated between 0.0293 in 1955 and 1.8168 in 1973 with an average of 0.6445) and timely FMD discovery followed by a rapid response applying very strict intrafocal, perifocal and territorial measures. There were used different complex methods, including stamping-out, adjusted flexibly in time and place to epizootiological situation and influencing factors such as livestock concentration in large units. Important role was played by the strong and centralized public veterinary service with adequate infrastructure, necessary facilities such as FMD diagnostic laboratory, vaccine production and rendering plants, material and financial support. During 1957-1960, a particular epizootiological research was conducted in 70 districts, 245 villages and 459 farms affected by FMD; the results were expressed in morbidity, mortality, sanitary slaughter, disease course, outbreak duration, promptness of disease detection and response, virus types and ways of transmission.

FMD course, FMD detection, FMD diagnosis, FMD emergency, FMD measures, FMD vaccination

In former Czechoslovakia (127,858 km^2 with about 4.4 million cattle, 6 million pigs and 646 thousand sheep in 1960) after the Second World War foot and mouth disease (FMD) was widely spread causing enormous losses to animal production. First relatively reliable data were from 1952 when panzootic FMD affected 5,912 villages with 316,997 diseased and 23,112 dead animals. At that time there were many factors facilitating FMD introduction and spreading, such as insufficient country protection against FMD introduction from abroad, strong dependence on risky uncontrolled import of animals and animal products due to a lack of food self-sufficiency, late FMD discovery and application of insufficient intrafocal and perifocal measures, mass aphtization using local outbreak virus combined with convalescent blood or serum, lack of rendering facilities (FMD dead animals were buried) and insufficient intrafocal sanitation (lack of modern disinfection techniques). Other factors included very weak public veterinary service unable to cope effectively with the FMD situation, decentralized veterinary service without necessary facilities, materials and a sufficient budget, weak vertical and horizontal coordination, the lack of appropriate legislation for anti-FMD duties of animal owners, inhabitants and local authorities, lack of effective anti-FMD instructions and methodology, lack of emergency planning, etc. The paper describes the strategy and measures conducive to FMD eradication.

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Materials and Methods

The paper is based on the available data on FMD as published in Statistic Yearbooks of State Veterinary Service of former Czechoslovakia, literature publications, government legislation and instructions of the State Veterinary Administration. National publications include the contributions of Klobouk (1951), Dražan (1952), Dombek et al. (1955), Kouba (1963, 1965), Haladej et al. (1975), Hubík (1986) etc. Another data source is the research results and experience of the author who was technically responsible as the National Chief Epizootiologist for FMD control and eradication. The selection of methods was based mainly on the knowledge of FMD features, field investigations results, previous experience and international recommendations.

Prevention

Risky import of animals and their products was gradually reduced thanks to increasing self-sufficiency in food of animal origin (reached in 1975). Import conditions were very strict, including quarantine, followed by intensive post-import investigations and long-term monitoring. Vaccination against FMD was usually carried out in all frontier zones, around the most risky places such as outbreaks, FMD vaccine factory, international quarantines, rendering plants, some major cities and traffic crossways. Size, localization and frequency of anti-FMD vaccinations depended on a series of factors: risk grade, disease occurrence, its territorial distribution, dynamics and tendency, virus serotype and its virulence, availability of adequate vaccine, etc. Revaccination was always done in young animals. Adult animals were revaccinated in case of shorter post-vaccination immunity and when a new virus strain incompatible with the previously used vaccine emerged, i.e. when it was necessary to use a different serotype vaccine. Production of monovalent, bivalent and trivalent vaccines (based on Waldmann and later Frenkel methods) covered the country's needs including emergency reserves. Vaccine batches before distribution were subjected to efficacy and safety tests by the new Institute for State Control of Veterinary Bioproducts and Drugs. Systematic surveillance of animal population health and strict veterinary control of animal movement, trade, markets and exhibitions were carried out. FMD Reference Laboratory for virus identification and typing was established in 1952 simultaneously with the vaccine production in Bioveta Terezín (founder Prof. A. Klobouk). The Veterinary Sanitation Institute was established with a network of rendering plants collecting and disposing dead animals and providing thorough disinfection. In order to have everything needed ready in advance and not to waste time in case of emergency, "anti-FMD emergency plans" (first detailed instructions and models were issued in 1960) were elaborated at all managerial levels (national, provincial, district, municipal and large livestock units) and were supported by staff, material and budget, regularly updated and usually verified through simulation exercises. Permanent alert (24-hours-a-day) was organized at the FMD Reference Laboratory and at all levels of public veterinary service from local to national, i.e. at least one responsible officer whose address and telephone number were known to veterinary staff had to be at any moment available for an immediate anti-FMD action.

FMD detection

Intensive anti-epizootic surveillance facilitated the efforts to shorten the period between the virus introduction and the disease diagnosis, and a timely application of anti-FMD measures (full compensation of losses due to FMD, and all anti-epizootic actions being free-of-charge motivated animal owners to report suspect cases in time). From 1957 all primary and the majority of secondary outbreaks were investigated without any delay on-the-spot also by FMD Reference Laboratory specialists and the National Epizootiologist to confirm or reject the initial diagnosis, to identify infected and suspected herds (premises), to adjust provisional measures (every case was different requiring different application of anti-FMD principles), to trace ways of virus introduction and of eventual further propagation and to collect samples for laboratory investigation. Extraordinary attention was paid to demarcate as exactly as possible the limits of outbreaks, perifocal areas and threatened zones (bases for well adjusted measures) requiring systematic, physically very demanding and time consuming clinical investigation of FMD susceptible species of animals to determine the epizootiological diagnosis.

Measures

Extraordinary measures were applied to isolate farms and villages with FMD animals prohibiting to abandon the outbreak area, to abandon and enter an affected village for persons (supply of foodstuffs and other commodities from outside was arranged) and animals under the patrols of police and local sentinel staff (utilizing temporarily stay-home-persons). In all outbreaks at least one public service veterinarian was designated to investigate the animals daily and to report on the disease development, to control the anti-FMD measures and to advise on the solution of local problems related to the measures. Daily epizootiological controls were carried out in all protection zone herds, searching for other or suspect FMD cases, as well as systematic inspections of all anti-FMD measures and their timely adjustment to changing situation. Aphtization was stopped and in large FMD farms replaced by intrafocal vaccination assuring that all surviving animals were immune before declaring the end of the outbreak. "Stamping out", based on the slaughter and disposal of all intrafocal animals, was usually used in primary outbreaks, sporadic cases, in small farms, on pig facilities, in fattening farms, etc. (only after confirming FMD-free-status in perifocal and protective zones) providing that this method was expected to result in rapid territorial eradication. This radical approach became normal in all cases during the last eradication period. In the protective zones I and II, of up to 20 km around the outbreaks very strict measures were applied, prohibiting the transfer of FMD susceptible species of animals (with the exception to slaughterhouses) submitted to daily systematic veterinary inspection and prohibiting gatherings of people, such as meetings, cultural and sport events, etc. In the

affected provinces, and eventually in the whole country, all animal markets and exhibitions were prohibited. An FMD outbreak area was declared as FMD-free after 14 days of an observation period, following the last case of specifically diseased animals (recovered or slaughtered, supposing that surviving animals were in natural or post-vaccination immunity) and after very thorough sanitation of the infected facilities and neighbouring areas (once even army chemical units were used).

Management

New legislation was issued: The Veterinary Act (1960), a government decree (1961) and several ministerial regulations specified the duties of local authorities, animal owners and inhabitants to report immediately any FMD suspicion and to participate in anti-FMD actions (all previous chaotic legal anti-epizootic documents were abolished and replaced by only one covering the entire spectrum of epizootiological problems). All anti-FMD measures affecting persons, villages, districts and provinces were dictated by local government authorities referring to the respective legislation. The State Veterinary Service - the main initiator - was responsible principally for professional solutions and carrying out specific activities. National, provincial, district and municipal "anti-epizootic committees" were established at high decision-competent levels to coordinate anti-FMD activities and to arrange for measures outside the competence of the veterinary service. A particular anti-FMD reporting system was established: on an FMD outbreak, initial and daily results of investigations, final reports on the FMD course in affected farms (ranches), villages and districts. The reports were based on the diary recording of FMD course in affected farms and villages and on investigation protocols elaborated by FMD specialists. Veterinary services were merged into the government body creating a strong, unified and centralized organization, under the command of National Chief Veterinary Officer, able to cope effectively with main animal health/disease problems such as the FMD. Veterinary manpower was gradually strengthened thanks to a rapid increase in numbers of newly graduated veterinarians (to fill the gap caused by closed down universities during the 6-year war occupation) reaching to about 2,500 veterinarians in 1975. In anti-FMD emergency activities all public service veterinarians were involved. Important role was played by a new network (established in 1959) of well-trained provincial and district epizootiologists. Intensive free-of-charge training, including also anti-FMD components, was organized in a new Institute for Postgraduate Veterinary Training for all provincial and district specialists and for the majority of public service veterinarians assuring a uniform approach when implementing anti-FMD strategy and instructions of the Chief Veterinary Officer. The State Veterinary Directorate published a series of methodology documents at a new Institute for Veterinary Extension, on how to proceed in different FMD situations and many information materials for public and animal owners.

Epizootiological research

During 1957-1960 a particular research was carried out in 70 districts, 245 villages and 459 farms affected by FMD (Kouba 1961). The results were expressed in terms of morbidity, mortality, sanitary slaughter, disease course, outbreak duration, promptness of disease detection and response, virus types, focality, clinical picture, virus sources, ways of transmission and losses.

Results

1. FMD eradication in former Czechoslovakia was reached in 1975. Number of FMD outbreaks (villages) was reduced from 5,912 with 316,997 diseased and 23,112 dead animals in 1952 to zero during 23 years. FMD-free status has been maintained until today, i.e. during the following three decades.

2. During 1952 -1975 8,898 new FMD outbreaks (villages) were reported with 397,024 diseased and 60,812 lost animals (Table 1) . The average per one FMD village reached 44.62 diseased and 6.83 lost animals. The mortality of diseased animals was 15.32% on average. The annual average of ratios of lost to diseased animals was 0.1532, oscillating between a minimum of 0.0729 in 1952, and a maximum of 3.8989 in 1972.

3. Ratios of primary to secondary outbreaks reflecting FMD spreading and effectiveness of anti-FMD measures were reduced from 1:5,912 in 1952, to 1:170 in 1957, to 1:50 in 1961, to 1:15 in 1968 and 1973 and to 1:1 in 1975. FMD zero incidences were temporarily reached in 1967, 1970, 1971 and 1974.

4. During the period of 1954-1980 there were reported 77,301, 957 vaccinations of cattle. Ratios of vaccinations to cattle population (V/P ratio) with the annual average of 0.6445 oscillated between a minimum of 0.0293 in 1955 and a maximum of 1.8168 in 1973. In the Czech Republic the number of cattle vaccinations reached 51,058,066 (V/P ratio = 0.6131), and in the Slovak Republic 26,243,891 (V/P ratio = 0.7157) (Table 2).

5. During 1961-1980, 9,611,765 vaccinations of pigs were reported. Ratios of vaccinations

Table 1. Foot and mouth disease in Czechoslovakia, 1952-1980. Number of reported outbreaks (villages), diseased and lost animals

Year	Outbreaks (FMD villages)	Diseased animals		Lost animals		Ratio lost/diseased animals
		number	average per village	number	average per village	
1952	5,912	316,997	53.62	23,112	3.91	0.0729
1953	2,264	41,037	18.13	5,272	2.33	0.1285
1954	162	2,571	15.88	274	1.69	0.1066
1955	92	2,653	28.84	94	1.02	0.0354
1956	10	374	37.40	0	-	-
1957	170	2,752	16.19	1,152	6.78	0.4186
1958	14	259	18.50	11	0.79	0.0425
1959	29	2,511	86.59	534	18.41	0.2127
1960	32	1,791	55.97	704	22.00	0.3931
1961	50	2,072	41.44	698	13.96	0.3369
1962	24	1,047	43.63	757	31.54	0.7230
1963	23	1,878	81.65	2,931	127.43	1.5607
1964	27	3,664	135.70	5,733	150.87	1.5647
1965	38	7,048	185.47	9,535	250.92	1.3529
1966	4	931	232.75	95	23.75	0.1020
1967	0	0	-	0	-	-
1968	15	2,149	143.27	2,149	143.27	0.7299
1969	7	2,944	420.57	2,098	299.71	0.7126
1970	0	0	-	0	-	-
1971	0	0	-	0	-	-
1972	9	267	29.67	1,041	115.67	3.8989
1973	15	4,023	268.20	4,469	297.93	1.1109
1974	0	0	-	0	-	-
1975	1	56	56.00	153	153.00	2.7321
1976	0	0	-	0	-	-
1977	0	0	-	0	-	-
1978	0	0	-	0	-	-
1979	0	0	-	0	-	-
1980	0	0	-	0	-	-
Total	8,898	397,024	44.62	60,812	6.83	0.1532

to pig population with the annual average of 0.0809 oscillated between of 0.0033 in 1971 and 0.1467 in 1962. The number of pig vaccinations reached 4,924,909 (V/P ratio = 0.0675) in the Czech Republic and 4,686, 856 (V/P ratio = 0.1074) in the Slovak Republic (Table 3).

6. Results of epizootiological research of the FMD during 1957- 1960:

a) FMD was discovered in 15 (75%) provinces, 70 districts (25.09%), 245 villages (1.63%) and on 459 farms.

b) On average, in one FMD province, 4.06 districts were affected, in these districts 3.5 villages, and in these villages 1.87 farms.

c) From the total number of FMD farms 55.33% belonged to small farms (private sector) and 44.77% to large farms (31.45% to Unified Farmers' Cooperatives, 7.8% to state farms and 5.42% to farms of other centrally planned sector).

d) FMD type was identified in 53.06% affected villages: type A was identified in 51.53%, type O in 40.76%, mixed types A+O in 6.92% and type C in 0.76% cases.

e) On FMD farms there were 10,043 heads of cattle, 172 sheep, 292 goats and 11,038 pigs. In comparison with the country population on 1 January 1960, it represented 0.233% of the cattle population, 0.023% of the sheep population and 0.19% of the pig population.

Table 2. Foot and mouth disease in Czechoslovakia, 1954-1980. Reported number of prophylactic vaccinations of cattle and ratios vaccinations/population (V/P)

Year	Total Vaccinations	Ratio V/P	Czech Republic Vaccinations	Ratio V/P	Slovak Republic Vaccinations	Ratio V/P
1954	480,843	0.1189	266,729	0.0958	214,114	0.1702
1955	120,225	0.0293	120,225	0.0421	0	-
1956	237,159	0.0574	237,159	0.0820	0	-
1957	2,080,000	0.5346	2,186,895	0.7692	0	-
1958	619,782	0.1482	619,782	0.2129	0	-
1959	1,339,000	0.3112	836,000	0.2799	503,000	0.3822
1960	2,306,000	0.5256	1,967,000	0.6492	339,000	0.2498
1961	1,251,816	0.2771	1,058,863	0.3381	192,953	0.1392
1962	1,838,158	0.4078	1,414,535	0.4535	423,623	0.3052
1963	1,893,381	0.4226	1,333,889	0.4294	559,492	0.4072
1964	2,301,869	0.5189	1,435,664	0.4684	866,205	0.6318
1965	3,251,224	0.7408	1,546,146	0.5135	1,705,078	1.2374
1966	2,886,607	0.6469	1,737,531	0.5727	1,149,076	0.8047
1967	2,727,607	0.6147	1,638,670	0.5397	1,088,937	0.7773
1968	2,058,251	0.4884	1,150,427	0.3905	907,824	0.6967
1969	1,924,044	0.4556	1,094,015	0.3721	830,029	0.6469
1970	2,046,721	0.4773	1,332,260	0.4504	714,461	0.5372
1971	2,106,284	0.4843	1,499,179	0.4989	607,105	0.4517
1972	3,499,009	0.7835	1,902,024	0.6149	1,596,985	1.6331
1973	8,277,221	1.8168	4,678,072	1.4776	3,599,149	2.5893
1974	5,026,817	1.1009	3,318,301	1.0409	1,708,516	1.2399
1975	4,755,515	1.0440	3,054,610	0.9531	1,700,905	1.2599
1976	4,768,717	1.0246	2,938,859	0.8993	1,829,858	1.3202
1977	4,998,209	1.0504	3,246,469	0.9732	1,751,740	1.2319
1978	3,446,016	0.7051	3,213,578	0.9353	232,438	0.1602
1979	5,436,426	1.1061	3,553,367	1.0363	1,883,059	1.2672
1980	5,518,161	1.1032	3,677,817	1.0511	1,840,344	1.2244
Total	77,301,957	0.6445	51,058,066	0.6131	26,243,891	0.7157

f) Of the total number of animals on FMD farms, 4,995 heads of cattle (morbidity = 49.73%), 7 sheep (4.06%), 81 goats (27.73%) and 2,121 pigs (19.21%) became sick. The average FMD morbidity on large farms reached 48.12% in cattle, 6.19% in sheep, 8.86% in goats, and 18.52% in pigs; average FMD morbidity on small farms reached 69.62% in cattle, 10.16% in sheep, 64.20% in goats and 28.07% in pigs. “Stamping out” shortened the life of intrafocal animals.

g) Average FMD natural mortality reached 1.32% in cattle, 0% in sheep, 16.5% in goats, and 2.13% in pigs. Of FMD diseased animals, 8.28% cattle, 28.57% sheep, 64.20% goats and 32.48% pigs were sanitarily slaughtered, which shortened the individual animals’ disease and the outbreak duration.

h) Of the total FMD diseased animals, natural death and sanitary slaughter comprised 480 heads of cattle (9.60%), 2 sheep (28.57%), 65 goats (80.25%) and 1,116 pigs (34.61%). Of the total of FMD diseased animals on large farms, natural death and sanitary slaughter comprised 413 cattle (9.23 %), 5 goats (71.44 %), and 978 pigs (51.53 %). Of the total FMD diseased animals on small farms natural death and sanitary slaughter comprised 67 heads of cattle (33.72%), 2 sheep (33.3%), 60 goats (86.4%), and 138 pigs (57.67%).

i) The delay in reporting new FMD outbreaks and in the identification reached in 141

Table 3. Foot and mouth disease in Czechoslovakia, 1961-1980. Reported number of prophylactic vaccinations of pigs and ratios vaccinations/population (V/P)

Year	Total Vaccinations	Ratio V/P	Czech Republic Vaccinations	Ratio V/P	Slovak Republic Vaccinations	Ratio V/P
1961	92,179	0.0156	57,203	0.0157	34,976	0.0156
1962	86,517	0.1467	52,031	0.0142	34,486	0.0154
1963	168,358	0.0288	131,710	0.0359	36,648	0.0168
1964	113,380	0.0185	25,545	0.0066	87,835	0.0385
1965	120,217	0.0217	50,997	0.0146	69,220	0.0338
1966	28,239	0.0053	14,114	0.0042	14,125	0.0072
1967	26,766	0.0048	13,055	0.0037	13,711	0.0067
1968	38,022	0.0074	10,664	0.0033	27,358	0.0144
1969	80,142	0.0159	33,953	0.0107	46,189	0.0247
1970	28,366	0.0053	22,109	0.0065	6,257	0.0029
1971	19,636	0.0033	9,079	0.0024	10,557	0.0048
1972	217,343	0.0357	21,802	0.0055	195,541	0.0908
1973			no information			
1974	2,302,159	0.3426	533,160	0.1238	1,768,999	0.7334
1975	1,183,845	0.1771	541,939	0.1267	641,906	0.2666
1976	1,080,714	0.1585	582,621	0.1357	498,093	0.1972
1977	1,252,857	0.1668	655,118	0.1373	597,739	0.2179
1978	948,846	0.1248	716,408	0.1475	232,438	0.0847
1979	900,180	0.1186	713,274	0.1487	186,906	0.0669
1980	923,999	0.1171	740,127	0.1449	183,872	0.0659
Total	9,611,760	0.0809	4,924,909	0.0675	4,686,856	0.1074

evaluated cases on average 3.09 days from the first symptoms (2.89 days on large farms and 3.34 days on small farms). On the day of FMD identification by veterinary service, clinical symptoms were already present in 22.33% cattle, 85.71% sheep, 79.01% goats and 37.29% pigs of the total number of clinically sick animals during the outbreak.

j) Duration of the FMD from the date of diagnosis until the last clinical symptoms was on 137 evaluated FMD farms on average 10.97 days, in 86 large FMD farms 13.21 days and in 51 small FMD farms 7.19 days.

k) Duration of quarantine blockade from the date of diagnosis until the abolition of isolation measures reached on 372 evaluated FMD farms on average 23.99 days, on 181 large FMD farms 28.50 days and on 191 small FMD farms 19.28 days.

l) “Stamping out” of all FMD susceptible species of animals in the affected farms was applied in 153 cases (70 in large farms and 83 in small farms).

m) The clinical picture was as follows: in 1,403 diseased cattle of 50 evaluated FMD outbreaks there were reported: anorexia in 99.86%, fever in 75.41%, mouth changes in 82.34%, changes on the muzzle in 45.76%, changes on the udder in 18.03%, changes on the extremities (interdigital space) in 12.47% and other changes such as heart malfunction, changes at horn root, on conjunctiva, abortions, etc. in 1.42%; in 243 diseased pigs of 21 evaluated FMD outbreaks there were reported: anorexia in 98.77%, fever in 62.97%, changes on the snout in 9.87%, on the udder in 6.99%, on the extremities (interdigital space and along the coronary bands) in 96.30% and other such as sudden death, loss of the horny covering of the toe, agalactia, abortions, etc. in 11.12%.

n) The following ways of FMD virus transmission (introduction, propagation) were registered or suspected: by persons 46 ×, by meat products and in connection with

slaughterhouse operations 20 ×, within the city with FMD vaccine production factory 13 ×, by kitchen wastes 10 ×, by animal movement (transfer) 7 ×, by transport means and equipments 6 ×, in connection with foreign countries 5 ×, by milk 1 × and during common pasture 1 ×; there were 6 cases of FMD recurrence in previously affected villages.

o) Meat losses. If the estimated average live weight in cattle was 250 kg and 40 kg in pigs, the total loss was about 33,580 kg of non-comestible and 178,278 kg of conditionally comestible meat. Average weight loss in 26 evaluated cases with 2,391 diseased cattle reached 30.27 kg per one affected animal.

p) Milk losses. Due to reduced milk yield in 19 evaluated cases with 1,925 diseased cows the loss reached 59.60 litres per milking cow. Due to disposal of pathologically changed milk the loss was in 11 cases 21.48 litres per one milking cow. In 29 evaluated FMD villages the average milk loss was 985.10 litres per day.

q) Monetary losses due to anti-FMD measures in 32 evaluated FMD villages were on average 49,281 Kčs. The losses due to anti-FMD measures in 16 evaluated FMD districts were on average 333,847 Kčs (10 Kčs = 1 USD).

r) In 35 evaluated FMD villages on average 47 outside-employed persons (commuters) had to stay home, losing on average 15.71 working days per one employee.

s) The use of disinfection preparations in 33 evaluated FMD villages was on average 86 q lime, 101 kg sodium hydroxide and 238 kg of chlorine disinfectants.

Discussion

The main criterion for any strategy or method is the result of their practical applications. The FMD eradication in former Czechoslovakia proved that selected system approach and actions were adequate for changing the epizootiological situation and influencing conditions. The previous FMD panzootics were gradually converted into limited epizootics and later in sporadic cases avoiding the enormous losses of the past. Effectiveness of the anti-FMD measures was also reflected in a low number of diseased and dead animals, in spite of a high concentration of cattle and pigs. In some FMD cases, animals with residual post-vaccination immunity had a mild clinical manifestation, thus reducing the average values of national morbidity and mortality. A decisive factor for the FMD eradication was the speed of disease discovery and a timely application of appropriate measures, avoiding secondary outbreaks or minimizing their number. Immediate response to any FMD suspicion was facilitated thanks to thorough FMD emergency plans. Among their main components were very detailed procedures of clinical and epizootiological investigations, elaborated texts of intrafocal, perifocal and protective zones measures; pre-printed information texts, texts of public notices (quarantine orders), different questionnaires and forms to be filled (for specimen shipment to laboratory, for registration of and reporting on the FMD situation, for vaccine provision order, etc.); lists of addresses and telephones of veterinary service officers and FMD specialists (in the districts of all veterinarians), members of the anti-epizootic committee, FMD Reference Laboratory, facilities of local to national importance (e.g. slaughterhouses, rendering plants, sources and storages of material needed for anti-FMD actions); list of villages and large ranches with the numbers of animals according to their species and categories; local and territorial maps, etc. The strictness of country protection against the introduction of FMD from abroad can be documented also by closing the border with Hungary against an approaching FMD wave in 1965. It was not possible to avoid FMD introduction through wild birds. Unified veterinary service with flexible management was able to mobilize all its components and in a case of need, to send fully equipped public veterinarians (including transport means) to help in other parts of the country (e.g. in 1973, three hundred veterinarians from the Czech Republic were sent to help the Slovak Republic to eradicate the FMD in Western

Slovakia). The experience was exploited by a Czechoslovak 16-member anti-FMD expedition in 1964 that decisively contributed to saving the Mongolian livestock by applying a flexible anti-FMD system approach and a double-barrier (including the vaccination of 790 thousand cattle, sheep, goats and camels with Czechoslovak type AO vaccine, which proved to be very effective). The FMD eradication was made possible by the specialists of Bioveta Terezín, thousands of public service veterinarians and their supporting staff, diagnostic laboratories, veterinary faculties, organizations and government bodies involved in the programme, supportive farmers and public. Successful control of the FMD in Czechoslovakia as well as other Central European countries represented an important buffer zone for the protection of Western Europe against FMD waves coming from Eastern and South-Eastern Europe.

More information is available at www.cbox.cz/vaclavkouba/FMDeradica.htm.

Slintavka a kulhavka: eradikace v bývalém Československu

Po druhé světové válce v bývalém Československu byla slintavka a kulhavka značně rozšířena, způsobujíce velké ztráty v živočišné produkci. První spolehlivé údaje byly z r. 1952, kdy bylo evidováno 5,912 slintavkou postižených obcí s 316,997 nemocnými a 23,112 uhynulými zvířaty. V důsledku velmi náročného protislintavkového programu byl panzootický výskyt slintavky postupně omezen až na sporadické případy a nakonec byla dosáhnuta její eradikace v r. 1975. V průběhu let 1952 až 1975 bylo evidováno 8,898 nových slintavkových ohnisek (obcí). Jsou popsána protislintavková opatření jakož i eradikační strategie a metody. Eradikace bylo dosaženo především díky: velmi přísným opatřením k zamezení zavlečení slintavky ze zahraničí, ochraně animálních populací včetně protislintavkové vakcinace (roční hodnota poměru vakcinací k populaci skotu kolísal mezi 0.0293 v r. 1955 a 1.8168 v r. 1973; průměrná hodnota byla 0.6445) a včasnému odhalení slintavky s následující rychlou reakcí spočívající ve velmi přísných intrafokálních, perifokálních a teritoriálních opatřeních. Byly používány různé komplexní metody, včetně „stamping out“, pružně přizpůsobované v místě a čase dané epizootologické situaci a ovlivňujícím faktorům jako byly vysoké koncentrace zvířat ve velkochovech. Důležitou roli hrála centralizovaná státní veterinární služba s odpovídající infrastrukturou, nezbytnými zařízeními pro laboratorní diagnostiku slintavky, výrobu protislitavkové vakcíny a pro asanaci jakož i s nezbytnou materiální a finanční podporou. V průběhu let 1957-1960 byl prováděn epizootologický výzkum v 70 okresech, 245 obcích a 459 chovech postižených slintavkou; výsledky byly vyjádřeny v hodnotách morbidity a mortality, v průměrných hodnotách počtu nutných porážek, průběhu nemoci, délky trvání ohnisek, rychlosti v odhalení nových ohnisek a v reakci na ně jakož i ve frekvenci typů a cest přenosu slintavkového viru.

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