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PREVENTION OF CLASSICAL SWINE FEVER SPREADING IN CROSS-BORDER REGION THROUGH IMPROVEMENTS OF SANITARY STANDARDS AND EDUCATION OF FARMERS

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Abstract

This paper describes the implementation of the project "Prevention of CSF spreading in the cross-border region through improvements of sanitary standards and education of farmers - STOP CSF" implemented and funded under the IPA Cross-Border Programme Croatia-Serbia 2007-2013. The project had been implemented in Serbia by Scientific Veterinary Institute "Novi Sad" from Novi Sad and the project partners in the Republic of Croatia were Osjek-Baranja County and the Regional Developmental Agency of Slavonia and Baranja Ltd from Osijek. The project was implemented in the period 17 January 2011 - 17 July 2012 (18 months). All planned project activities have been fully implemented. A promotional leaflet was designed, edited and printed in 10000 copies (5000 copies in Serbian and 5000 copies in the Croatian language). On the territory in Serbia where the project was carried out (Southern Backa and Srem district) all of the copies of leaflets printed in Serbian language were distributed. The Manual "The prevention of classic swine fever (CSF) in rural farms" of authors, Sava Lazić, Tamaš Petrović, Jasna-Prodanov Radulović and Radoslav Došen, was also edited and printed in 4000 copies (2000 on Serbian and 2000 on the Croatian language). On the territory in Serbia where the project was carried out all the copies of the manual printed in Serbian language were distributed. On the topic of CSF, 10 workshops have been held, visited by 237 participants in Serbia and 4 joint workshops have been held (two in Serbia and two in Croatia) for farmers both from Serbia and Croatia with the total of 84 farmers attended (43 from Croatia and 41 from Serbia). Therefore the workshops in

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Serbia were attended by 278 participants. For better education and training for implementation of biosecurity measures in the prevention of CSF, in the period from the 21st to the 26th of November 2011 there was organized a study tour to Vehta (Bremen) in Germany. On the study tour, there were 15 farmers and 4 members of the Project team from Serbia, and 15 farmers with 3 members of the Project team and an interpreter from Croatia. In the area of project implementation in Serbia, on family farms, there were 18 disinfectant barriers built. A cost-benefit analysis was made that scientifically and professionally determined that the invested funds are multi functional and instrumental in the prevention of CSF. The film „Preventing the CSF in rural households" (30 min. long) and a TV spot (60 seconds long) were made. They have been broadcasted on over 10 local TV stations. The peak point of project activities was the International Conference: "Preventing the spread of CSF in the border region of Croatia-Serbia (STOP-CSF)" which was held on the 7th and 8th of June 2012 in Novi Sad. At the conference 25 scientific and professional papers were presented by the speakers from Germany (EU Reference Laboratory for CSF), by high scored professionals from the neighbouring countries (Italy, Slovenia, Austria, Romania, Hungary, Bulgaria, Macedonia, and Bosnia and Herzegovina) and the countries where the project was implemented (Croatia and Serbia). The first day of the Conference there were 152 participants, and 158 on the second day, mainly veterinarians. The general impression was that the Conference was successful, the lectures and discussions provided explanations on many issues from epizootiological surveillance, prevention and diagnostics of Classical Swine Fever (CSF).

Key words: IPA Project, Cross-Border Programe Croatia-Serbia, Classical swine fever

SPREČAVANJE ŠIRENJA KLASIČNE KUGE SVINJA U POGRANIČNOM REGIONU KROZ POBOLJŠANJE SANITARNIH STANDARDA I OBRAZOVANJE FARMERA

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Kratak sadržaj

U ovom radu je dat opis realizacije projekta: "Sprečavanje širenja klasične kuge svinja u pograničnom regionu kroz poboljšanje sanitarnih standarda i obrazovanje farmera (STOP–KKS)", koji se sprovodio i finansirao u okviru IPA Međugraničnog programa Hrvatska-Srbija 2007-2013. Projekat u Srbiji je realizovan od strane Naučnog instituta za veterinarstvo "Novi Sad" iz Novog Sada i sa partnerima iz Hrvatske, Osječko-Baranjska županija i Regionalna razvojna agencija Slavonije i Baranje iz Osjeka. Projekat je sproveden u period od 17. januara 2011. do 17. jula 2012. godine (18 meseci). Sve planirane projektne aktivnosti su u potpunosti realizovane. Edukativni letak je uređen i odštampan u 10000 primeraka (5000 primeraka na srpskom jeziku i 5000 primeraka na hrvatskom jeziku. Kopije na srpskom jeziku podeljene su na teritoriji realizacije projekta u Srbiji, a to su Južnobački i Sremski okrug. Priručnik "Sprečavanje pojave klasične kuge svinja u seoskim domaćinstvima", autora: Lazić Save, Petrović Tamaša, Prodanov-Radulović Jasne i Došen Radoslava, je takođe uređen i odštampan u 4000 primeraka (2000 primeraka na srpskom jeziku i 2000 primeraka na hrvatskom jeziku). Svi primerci priručnika na srpskom jeziku su podeljeni na teritoriji realizacije projekta u Srbiji (Južnobački i Sremski okrug). Na temu klasične kuge svinja održano je 10 radionica, kojima je prisustvovalo 237 učesnika i 4 zajedničke radionice (dve u Srbiji i dve u Hrvatskoj) za farmere iz Srbije i Hrvatske, na kojima je učestvovalo 84 farmera (41 iz Srbije i 43 iz Hrvatske). Radi boljeg obrazovanja i obuke u primeni bio-sigurnosnih mera za sprečavanje pojave klasične kuge svinja u periodu od 21-26. novembra 2011. organizovano je studijsko putovanje u Vehtu (Bremen) u Nemačku. Na studijsko putovanje išlo je 15 farmera i 4 člana projektnog tima iz Srbije i 15 farmera, 3 člana projektnog tima i prevodilac iz Hrvatske. U oblasti realizacije projekta u Srbiji na 18 porodičnih farmi izgrađene su dezinfekcione barijere. Izrađena je "*Cost-Benefit*" analiza, kojom je na naučnoj i stručnoj osnovi utvrđeno da su uložena sredstva multifunkcionalna i imaju značajnu ulogu u sprečavanju pojave klasične kuge svinja. Izrađen je film "Sprečavanje pojave klasične kuge svinja u seoskim domaćinstvima" u trajanju od 30 minuta i TV spot od 60 sekundi, koji su emitovani na više od 10 lokalnih TV stanica. Vrhunac projektnih aktivnosti bila je međunarodna konferencija pod nazivom "Sprečavanje širenja klasične kuge svinja u pograničnom regionu Hrvatska-Srbija (STOP-KKS)", koja je održana 7. i 8. juna 2012. u Novom Sadu. Na konferenciji je prezentovano 25 referata, a predavači su bili iz Nemačke (EU referentne laboratorije za KKS), zatim ze-

malja u okruženju (Italija, Slovenija, Austrija, Rumunija, Mađarska, Bugarska, Makedonija i Bosna i Hercegovina) i zemalja gde se projekat realizuje (Hrvatska i Srbija). Na konferenciji je prisustvovalo prvog dana 152, a drugog dana 158 učesnika, uglavnom veterinara. Konferencija je bila uspešna, a predavanjima i diskisijom data su objašnjenja na više pitanja o epizootiološkom nadzoru, sprečavanju i dijagnostikovanju klasične kuge svinja.

Ključne reči: IPA projekat, Među-granični program Hrvatska-Srbija, klasična kuga svinja

INTRODUCTION

Classical swine fever (CSF) still presents a major threat to health and welfare of pigs and the economy of any country. The incidences of classical swine fever result in massive morbidity and mortality of pigs. The compulsory safe disposal of infected animals, suspicious animals and all animals that could have been in direct or indirect contact with the infected pigs causes great economic losses. Therefore, this diseases still influences the sustainability of pig farming in many EU countries, especially the countries of the Balkan Peninsula.

Direct loses occurring by death of diseased pigs and by safe disposal of all pigs that were or may have been in contact with infected and / or diseased pigs, while indirect losses are often unpredictable, and they are usually larger than the direct losses (Saatkamp H.W. et al. 2002). The last, but in the same time one of the biggest outbreaks of CSF was in The Netherland and Germany during 1997 and 1998. During that epidemic, CSF was registered in 420 pig farms in The Netherlands, about 11 million of pigs were killed and safely disposed, and the total damage is estimated at 243-466 million euros (Mangen J.J.M. et al. 2002). The feral pigs still represents the risk for CSF virus transmission and for the new outbreaks in the EU countries. Populations of feral pigs are increasing, so a lot of efforts have been made in the development and implementation of different strategies to prevent the occurrence of this disease in feral pigs (Guberti V. et al. 2012).

In Serbia, the CSF existing continuously, with occasional CSF free periods, for more than 20 years (the disease was detected for the first time on May 30th 1990, on the territory of Mačva district), and economic losses that are occurred during this period were extremely high (Djuričić B. et al. 2001, Djuričić B. et al. 2002,). The total number of infected pigs in the former Yugoslavia in the period 1994 - 1999 was 8,460, 21,979 animals were killed and safely disposed during the outbreaks, and a total of 41,941,516 animals have been vaccinated during that period (Djuričić B. et al. 2012.). From 2000 to 2007, the CSF has often appeared in small rural farms throughout the territory of the Republic

of Serbia, and often in the form of an epidemic. Areas, such as: Srem, Mačva, Northern Bačka, Smederevo-pomoravski County and Southwest parts of Serbia are sites where the CSF usually appeared during this period. The CSF was registered in 1,381 farms during this period and the number of infected pigs was 17,887. There are no exact data for the number of succumbed and safely destroyed pigs for that period, but there are data for the period from 2005 to 2007, when a total of 4,750 died, and 15,483 pigs have been safely destroyed (Milićević V. et al. 2009, Milošević B. 2010). The last epidemic of CSF in the Republic of Serbia was in late 2010, on one industrial pig farm and in a few rural backyards. During this epidemic 202 pigs have been infected, 155 animals died, and 9,063 pigs have been safely destroyed (Pušić I. et al. 2012). The total losses have been estimated on about 2 million euros.

Strategy for prevention, control and eradication of CSF in the Republic of Serbia is based on a systematic and planned vaccination of animals, on the control of animals immune status and on implementation of biosecurity measures on pig farms. By monitoring of the immune status of the vaccinated pigs, which was conducted in late 2010, was found that the percentage of protected pigs in the whole territory of Serbia is around 80%. However, in some areas the percentage of protected pigs was significantly lower - about 60% (Mićović Z. et al. 2012). Experience of many countries that had eradicated KKS suggests that the vaccination can be stopped when the protection is achieved in 90% of the total pig population, but with the strict application of biosecurity measures. Possibilities for implementation of biosecurity measures on pig farms is a key factor in preventing the occurrence and spread of CSF, but also the limiting factor for the termination of vaccination of pigs against CSF in Serbia (Hristov S. et al. 2012, Došen R. et al. 2012, Lazić S. et al. 2012.).

In Croatia, the CSF has often occurred on small rural farms in the period from 1996-1997 to 2003, although a constant vaccination of pigs against classical swine fever have been conducted at that time (Pavlak M. et al. 2011, Labrovic A. et al. 2012). No vaccination policy in CSF control in Croatia was introduced from 1st of January 2005. However, in 2006 and 2007 until the beginning of 2008 classical swine fever was registered in 295 rural households in Croatia and 19,320 pigs was killed and safely disposed (Croatian Ministry of Agriculture Fishers and Rural Development, Veterinary Directorate, 2012). By termination of vaccination, and then by removing of all pigs that have been vaccinated against CSF from the herds, the pig population in Croatia become completely naive and unprotected from the potential occurrence of this disease. Therefore, the only way to protect the pig's is by implementation of biosecurity measures, that are prescribed in a number of laws and regulations.

Implementation of biosecurity measures is conditioned by the commitment of all involved in the rearing of pigs, especially the owner, no matter how many pigs the owner has on the farm. Experiences from previous years still suggest that the smaller, so-called family farms are often a source of infection and highly contribute to the spread of CSF. However, in several cases have been proved that a good awareness of the owner, as well as other family members, about the disease such as the CSF, has contributed to the early detection of the disease and prevent further virus transmission. This significantly contributed to the lower economic losses. The family pig farms owners also need to know that by concealing of the disease and by negligent behavior they cause enormous damage (Lazić S. et al. 2011). Therefore by raising the awareness, and goodly informed pigs breeders about CSF in small rural farms, can be a key milestone in the implementation of biosecurity measures, especially in pigs breeding without vaccination against classical swine fever.

In the whole world, and especially in the EU, the great efforts are made in establishing and implementing of effective measures to prevent the occurrence and spread of CSF, for rapid diagnosis, for early detection, and especially for building of fast early warning systems, efficient education of pigs owners and breeders and capacity building for the implementation of biosecurity measures to reduce the risk of introduction and spread of CSF virus in rural areas. The project "Prevention of CSF spreading in the cross-border region through improvements of sanitary standards and education of farmers - STOP CSF" was proposed in October 2009 and accepted to be co-financed by the EU in December 2010. The European Union delegation in Zagreb and Belgrade are recognized the importance of this project, not only for the region between the two states, but also for much broader area. Thus, the "STOP-CSF" project aims at improving hygiene standards and education of farmers in order to reduce the risk of classical swine fever in the border region of Croatia and Serbia.

The project "Prevention of CSF spreading in the cross-border region through improvements of sanitary standards and education of farmers - STOP CSF" has been implemented and funded under the IPA Cross-Border Programme Croatia-Serbia 2007-2013. The project had been implemented in Serbia by Scientific Veterinary Institute "Novi Sad" from Novi Sad and the project partners in the Republic of Croatia were Osjek-Baranja County and the Regional Developmental Agency of Slavonia and Baranja Ltd from Osijek. The project budget was € 456,642, and the implementation had started 17.01.2011 and lasted 18 months.

The main objective of the project was to reduce the risk for occurrence and prevention of the spread of classical swine fever (CSF) by improving the sani-

tary standards and education of farmers in the border region of Osijek-Baranja County in Croatia and the South Backa and Srem County in Serbia.

The project main goals are to inform, educate and raise awareness, on the prevention of the spread of CSF, of farmers and peoples in rural areas, owners of small slaughterhouses, peoples involved in animal transportation, hunters and veterinarians through educational workshops, through preparation of manuals about the CSF disease, leaflets, educational movie and TV commercials, through study visit tour of Serbian and Croatian farmers to intensive pig farming facilities in Germany, by organization of the International Scientific conference on CSF and by implementation of biosecurity measures in small pig production systems in Serbia and Croatia.

Disinfection barriers for vehicles and personnel at the entrance in the pig production facilities (small family farms) could be an example of improving sanitary standards in the Serbia – Croatia border region. As one of the key project activity, these disinfection barriers have been built on family farms in the Osijek-Baranja County (22 disinfection barriers) and on family farms in South Backa and Srem County (18 disinfection barriers).

PROJECT DESCRIPTION

Main Objectives:

The main objective of the project was to reduce the risk of occurrence and prevention of the spread of classical swine fever (CSF) by improving the sanitary standards and education of farmers in the border region of Osijek-Baranja County in Croatia and the South Backa and Srem County in Serbia.

Overall objective of the project is: **Reducing economic damages in the region caused by CSF due to non-compliance with EU standards**

Specific objective of the project is: **Improving sanitary standards in order to reduce the risk of CSF transmission in the cross-border region**.

Target Group:

Members of family farms dealing with pig production; representatives of pig farmers associations, and producers in the sector of pig breeding.

Tasks (Activities):

1. Project management
2. Education and informing of family farms' members and members of hunting associations

- Joint Workshops (joint workshops with farmers from Croatia and from Serbia)
- Workshops (national workshops)

3. Creation of data base – preparation for comparative analysis
4. Creation of conditions for installation of disinfectant barriers on 40 family farms
5. Preparation and printing of educational-informative materials
   - Leaflet
   - Manual
   - Movie and TV spot
6. Organization of international conference on regional level
7. Organization of a study tour for visiting intensive pig production systems (in Germany)

Territorial Coverage:

Republic of Croatia: Osijek-Baranja County, municipalities of Erdut, Belje, Draž, Čeminac, Magadenovac and Semeljci

Republic of Serbia – municipalities of Novi Sad, Bač, Bačka Palanka, Ruma, Šid and Sremska Mitrovica.

RESULTS

Task Nr: **1.**

Task title: **Project management:**

Six Kick off meetings of the Steering Committee, 3 in Croatia and 3 in Serbia had been conducted. In Croatia the meetings were held on 24.01.2011 in Osijek, on 14.09.2011 in Dalj and on 03.05.2012 in Osjek. In Serbia the meetings were held on 16.05.2011 in Novi Sad, on 26.10.2011 in Zasavica, and on 05.07.2012 in Novi Sad. On the Steering Committee meetings, conducted activities were analyzed and further plans of implementation were determined for the upcoming period. Logs and attendance sheets were produced and sorted. The project team from the Scientific Veterinary Institute held 73 team meetings. These team meetings were held once a week, and on the meetings the previous work was analyzed and assignments and tasks were distributed for the following week. All meetings have been logged.

Task Nr: **2.**

Task title: **Education and information of family farms members (OPG) and members of hunting associations:**

For the aim of raising awareness on CSF in cases of outbreak, and informing on implementation of biosequrity measures, hygiene standards, EU regulations and national laws and acts, there were 10 workshops held in the following Counties: Sremska Mitrovica (2), Ruma (1), Šid (1), Bač (2), Bačka Palanka (1), Novi Sad (3). In total 237 participants attended on workshops and from that number: 139 farmers, 42 hunters, one butcher, 29 veterinarians and 26 people from other professions. There were also 4 joint workshops held, 2 were held in Serbia, one in Zasavica (Sremska Mitrovica County) on 26.10.2011 where the participants were: 10 farmers from Croatia and 12 from Serbia and one in Novi Sad on 14.12.2011 where the participants were 10 farmers from Croatia and 10 from Serbia. In Croatia the joint workshops were held in Dalj on 14.09.2011 where the participants were 10 farmers from Serbia and 10 from Croatia, also in Donji Miholjac where the participants were 9 farmers from Serbia and 10 from Croatia. It was planned that 240 people from Serbia should be educated through national workshops and joint cross border workshops and by the end of this activity there are 278 participants educated in total. Attendance sheets and reports from each workshop have been collected. For the purposes of the workshops, two lap tops, one video been, a screen and a camera, were procured.

Task Nr: **3.**

Task title: **Creation of a data base – preparation for comparative analysis:**

The Cost - Benefit Analysis (CBA) had been elaborated on 68 pages with 4 graphs, 5 geographical maps and 34 tables, through many aspects and by *"Monte Carlo"* simulation of epidemiological situation and economic losses in outbreak situation of CSF, it was determined that the intended funds of the project would pay off during the first year. Minimal advantages of the raised biosecurity measures and the building of disinfectant barriers are estimated to be 7 to 6 times greater than the amount invested.

Task Nr: **4.**

Task title: **Creation of conditions and installation of disinfectant barriers:**

Disinfectant barriers represent one of the key factors in hygiene standards in farms in prevention of CSF and other infectious disease. In the project activities it was planned that 18 barriers should be built in the southern Bačka and Srem County. First of all polls and research were conducted in order to determine which farms and family lands were appropriate for building the barriers. The key factor in determination was the number of farms with pigs and the amount of the pig population on the space they were grown, in the area of project

implementation. From 47 farms where research was conducted, 18 were picked for the building of barriers. In this stage there are 18 disinfectant barriers built. Geographically the count would be: in Sremska Mitrovica County there were 9 barriers built, in Bačka Palanka there are 4 barriers built, in Šid County there are 2 barriers built, in Ruma County there are 2 barriers built and in Bač County there is one disinfectant barrier built. All of the barriers were built according to the rule book "Rules of the veterinary and sanitary conditions for the farming and breeding of cattle, live stock and small live stock (chickens and rabbits), (the Official gazette of the Republic of Serbia number 81/2006). Owners of farms had to provide an owners document of the parcel on which the barrier is being built and sign a contract with the Scientific Veterinary Institute "Novi Sad" in which the building and usage of the barrier is regulated.

Task Nr: **5.**

Task title: **Preparation and printing of educational-informative materials:**

One of the key factors in raising awareness, in the goal of preventing CSF, is informing and educating the farmers. In order to educate and inform the farmers the project foresees that on the topic of CSF: 10000 leaflets be prepared, designed, edited, printed and distributed (5000 in Serbian and 5000 in the Croatian language), 4000 Manuals (2000 in Serbian and 2000 in the Croatian language), a 30 minutes long film is to be produced and distributed and from it a one minute TV spot is to be broadcasted on local television, as well as promoting this topic through local newspapers and radio. The project team of the Scientific Veterinary Institute "Novi Sad", during the implementation, has prepared the planned number of leaflets, 5000 were delivered to the partners in Croatia, and 5000 leaflets were distributed on the project implementation area in Vojvodina. A Manual titled **"The prevention of CSF in rural farms"** (dr Sava Lazić, dr Tamaš Petrović, Jasna-Prodanov Radulović and Radoslav Došen) was edited and printed in the planned number of 4000 copies. On the territory where the project was carried out (Southern Backa and Srem district) all the copies of the manual, printed in the Serbian language, were distributed and 2000 copies in the Croatian language were sent to partners in Croatia. The Croatian partners provided the texts in Croatian that were implemented in the leaflets and Manual.

Task Nr: **6.**

Task title: **Organization of international conference on regional level:**

According to the project activities, a international scientific conference entitled **"Preventing the spread of CSF fever in the border region of Croatia-Serbia (STOP - KKS)"** was organized by the Scientific Veterinary Institute "Novi

Sad". The conference was held in Novi Sad, on the 7th and 8th of June 2012, in Hotel "Park". The Conference was held according to a defined program, and 25 papers were reported. The speeches were given by the head of the EU Reference Laboratory for CSF from Hanover, the heads of National Reference Laboratories for CSF in the neighbouring countries, and the heads of the Reference Laboratories for CSF in Croatia and Serbia, representatives of the Veterinary Directorate of Croatia and Serbia and several experts from Serbia. Analyzing the papers of the conference it can be said that they gave a significant contribution to a better understanding, control and surveillance of CSF. In the light of latest scientific findings 16 papers presented the measures of epizootiological surveillance, control and diagnostics of CSF. The presented papers (4) on the topic „Biosecurity measures" provided answers to key moments of the risk of disease introduction into a pig herd, as well as implementation of measures that prevent these risks. The major contribution to better understanding of the occurrence and spread of CSF from feral to domestic pigs was presented in five reports. All the papers have significant scientific and professional basis, and can be applied on the entire Balkan region. Therefore, all the papers and abstracts presented at the Conference and printed in the Proceedings **"Preventing the spread of CSF in the border region of Croatia - Serbia"** fully correspond to the given topics, all were concise and comprehensive. On the first day 152 participants attended the Conference, and on the second day 158 participants. In addition to the lectures, an intensive discussion was held. Every participant received material consisting of a handbag (with printed signs of: EU, IPA Cross-border program Croatia-Serbia, Scientific Veterinary Institute "Novi Sad" and the sign of Osijek-Baranja County, printed name of the conference, place and date), the Proceedings, the manual "Preventing the emergence of CSF in rural households", three copies of a leaflet "Prevention of spread of CSF in the border region through the improvement of sanitary standards and education of farmers (STOP-CSF)", a DVD with the educational movie and TV spot on CSF, a notebook, a pencil and an identification card. The conference has been accredited by the Veterinary Chamber of Serbia, according to the Rulebook on Education of veterinarians. The general impression is that the conference was successful and that the lectures and discussions gave the explanations to many issues on epizootiological surveillance, prevention and diagnosis of CSF.

Task Nr: **7.**

Task title: **Organization of a study tour:**

For the goal of introducing and implementing biosecurity measures for prevention of infective diseases of pigs, a study tour in Germany was realized,

including farmers and project team members from Croatia and Serbia. The tour was conducted in Vechta (Bremen) from the 20th to the 26th of November 2011. The study tour was organized by the Croatian partners in cooperation with the "Big Dutchman" company. The study tour participants were: 15 farmers and 4 project team members from Serbia and 15 farmers, 3 project team members and an interpreter from Croatia. During the stay in Germany, the participants visited the headquarters of the "Big Dutchman" Company in Vechta, that deals in production and distribution of farm equipment for swine breeding, as well as complete technological lines for food distribution, energy, maintenance and ventilation that is based on the principals of the newest technical and scientific standards and is in sync with all biosecurity measures for the well being of the animals. During the Study tour the "Big Dutchman" Company organized two workshops with the topic of swine breeding and diseases prevention. One of the workshops was held by the representative of the Interest Group of swine breeding, Urlich Polschner, who represented his group, their goals and tasks. This group functions in the Vechta area, where they represent many farmers with the total breed of 7.5 million pigs. During the workshop, advantages the Interest Group provides were highlighted as was the need for such group to be formed in Serbia and Croatia. The other workshop was held by a veterinary doctor Horst Gaumann that presented the most important biosecurity measures on farms, and also presented his experiences in biosecurity measures and their role in the prevention of many infective diseases. Through a lecture and discussion, Mr. Gaumann presented actual measures of disease prevention in Germany and the roles of veterinary doctors in Germany. It can be concluded that the study tour in Germany, was successful and productive, especially if it is analyzed by the theoretical and practical aspects that were demonstrated along with the presentation of proper swine breeding and proper biosecurity measures that could certainly be implemented in Serbia and Croatia. One of the important aspects of this tour is that farmers from Serbia and Croatia had the chance to spend time together, exchange experiences and ideas, and form contacts for future cooperation.

DISCUSSION AND CONCLUSIONS

The grade for realized tasks results of the project is very high. Results that should be highlighted are the ones achieved through activities regarding the education of farmers through workshops, a study tour to Germany, the construction of disinfectant barriers and the International Conference. The Project aimed to educate, through workshops, 200 participants (farmers, veterinarians and a like) on the topics of CSF and biosecurity measures. However,

through 10 workshops in Serbia, 237 participants were educated and informed on these topics, which is 18.5 % more than the planned number. If the interest of farmers, for these workshops were to be graded, the interest of farmers from Sremska Mitrovica County should be highlighted. In the two workshops held in Sremska Mitrovica (the villages of Kuzmin on 03.09.2011 and Zasavica on 27.10.2011) there were 61 participants, which is 52.5% more than the planned number. It should be noted, as well, that Sremska Mitrovica has the largest number of family swine farms in the entire area of project implementation. The high grade for the workshops implementation is supported by the discussions between the participants and the lecturers. All of the workshops included a discussion on various topics, but the vaccination of swine in the Republic of Serbia, the risks of stopping the vaccination, the repercussions and advantages of this measure, as well as implementation of biosecurity measures and the competitiveness of Serbian swine meat in the European market, were the most common topics. When we include the joint workshops, held in Croatia (Dalj and Donji Miholjac) and in Serbia (Zasavica and Novi Sad), from the educational point of view, it can be concluded that in Serbia there were 278 participants, which is 15.83 % more than anticipated. A large contribution, to the more than successful implementation of workshops, goes to the lecturers (Dr. Sava Lazić, Dr. Tamaš Petrović, Mrs. Jasna Prodanov-Radulović and Mr. Radoslav Došen, the Project Team of the Scientific Veterinary Institute „Novi Sad"), they represent the leading experts, in this filed, in the Republic of Serbia.

The Study tours to Germany meet the expectations of all the participants, especially the farmers, so this activity will also be graded very highly. During the stay in Germany, the farmers had the chance to get accounted with the latest in technical advancements in swine breading, as well as the latest biosecurity measures that insure maximum profit in swine farming.

The making of the education and informational material (leaflets, Manual, TV spot and film) are also graded with the highest marks. The educational and informative material was made in the goal of raising awareness of the public on CSF and the necessary of biosecurity measures that need to be implemented in order to prevent this infectious disease in family farms. Rich illustration and the explanatory text, made the material easy to understand and quick to the point.

The construction of the disinfectant barriers represents a great contribution to the sustainability of the project in the period of the next 10 years. Also it is a significant improvement of sanitary standards on family swine farms. This is why this activity must be ranked the highest.

The International Conference held on the 7th and 8th of June, 2012, is graded very highly, and this is confirmed by a large number of attendees and lecturers.

This event represents the crown of the project and the successful realization of all projects activates. Through the presented papers, relevant facts were presented which further inspired the participants to debate and discuss the topics. The fact that the Conference was a success is supported by the conclusion that was reached by the participants, that in the goal of exchanging information and good experiences such a conference should be held periodically, every second year.

The main outcome of the project is the raised awareness of the border region population on CSF. The education of family farmers (swine breeders) and the construction of disinfectant barriers on family farms, in the goal of bettering the sanitary conditions and preventing CSF, are the most advantageous point of the project for the border region between Croatia and Serbia. Education of family farmers was conducted through 10 workshops in Serbia, 10 workshops in Croatia and 4 joint workshops, where family farmers from both Croatia and Serbia participated together. Throughout the workshops there were 278 participants educated. The population in the boarder region was introduced with dangers of CSF spreading, through leaflets (5000 copies in Croatian and 5000 copies in the Serbian language), Manuals (2000 copies in Croatian and 2000 copies in the Serbian language) and through broadcasting of a TV spot. In the border region of Serbia, 18 disinfectant barriers were built and 22 barriers in the border region of Croatia.

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