EXTERNAL REFERENCES

ID SCREEN®BVD P80 ANTIBODY COMPETITION

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Publications / References:

CATTLE

1) Afify A.F. *et al*. (2022). **First detection of emerging HoBi-like Pestivirus (BVD-3) among some persistently infected dairy cattle herds in Egypt**. Tropical Animal Health and Production, 54(6), 336.	• Study to determine the prevalence of persistent infections (PI) and identify the current strain among some dairy cattle herds. A total of 240 serum samples were tested using the ID SCREEN®BVD p80 ANTIBODY COMPETITION for detection of PI animals and a commercial P80 antigen detection ELISA, and then molecular characterization was performed. • *Results:* Six calves were found PI (negative for antibodies and positive for antigen) with a prevalence of 2.5% (6/240). Based on the phylogenetic analysis, all six samples were atypical HoBi-like Pestiviruses (BVD-3).			Epidemiological study		
2) Assunção S.F. et al. (2022). **Diagnosis and phylogenetic analysis of bovine viral diarrhea virus in cattle (Bos taurus) and buffaloes (Bubalus bubalis) from the Amazon region and Southeast Brazil**. Pesquisa Veterinária Brasileira, 42.	• Four different ELISA tests (including the ID SCREEN®BVD P80 ANTIBODY COMPETITION, named ELISA-4 in this study) were performed and confirmed by virus neutralization testing (VNT) to evaluate the occurrence of BVDV in cattle (n=77) and **buffaloes** (n=89). Extraction of viral RNA was performed from the serum or plasma samples for the detection of BVDV by RT-PCR analysis. • *Results*: in cattle, ELISA-1 detected 49.4% of seropositive animals, while the ID SCREEN®BVD P80 ANTIBODY COMPETITION detected 37.7%. In buffaloes, ELISA-1 (BVDV Total Ab Test IDEXX) failed to detect any seropositive animals, while ELISA-2 (BVDV p80 Ab IDEXX) and ELISA-3 (SERELISA BVD p80 Ab Mono Blocking SYNBIOTICS) detected 20.2% of seropositive animals, and the ID SCREEN®BVD P80 ANTIBODY COMPETITION detected 21.3%. The rate of PCR positive animals was 6.5% in cattle and 9% in buffaloes. Neutralization studies on seven randomly selected ID SCREEN®BVD P80 ANTIBODY COMPETITION buffalo positive samples with BVDV-1 showed that all these samples had BVDV-specific antibodies. In cattle, the ID SCREEN®BVD P80 ANTIBODY	Correlation with other techniques	Particular species	Epidemiological study		Performance evluation

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	COMPETITION detected 37.7% positive animal with two doubtful results, both confirmed positive in VNT. **From all the four ELISAs performed in buffalo sample, we conclude that the ID SCREEN®BVD P80 ANTIBODY COMPETITION was more reactive followed by SERELISA BVD p80 Ab Mono Blocking SYNBIOTICS , while BVDV Total Ab Test IDEXX is not efficient for diagnostic of BVDV seroprevalence in buffalo.**					
3) Gautam A. *et al*. (2022). **Seroprevalence and its associated risk factors of Bovine Neosporosis and Bovine Viral Diarrhea in cattle of Tilottama municipality, Rupandehi, Nepal**. Int J Vet Sci Res, 8(3), 127-132.	• 92 serum samples were tested using the ID SCREEN®BVD P80 ANTIBODY COMPETITION. • *Results*: 3 samples were positive for BVD antibodies. The apparent prevalence was 3.26% with a true prevalence of 3.10% for BVD.			Epidemiological study		
4) Wernike K. and Beer M. (2022). **International proficiency trial for bovine viral diarrhea virus (BVDV) antibody detection: limitations of milk serology**. BMC Veterinary Research, 18(1), 1-11.	• A ring trial sample panel (**5 sera and 5 milk samples**) was investigated by nine commercially available antibody ELISAs (including the ID SCREEN®BVD P80 ANTIBODY COMPETITION) as well as by neutralization tests against diverse BVDV-1, BVDV-2 and/or border disease virus (BDV) strains. • *Results*: *The presented interlaboratory proficiency trial for serological BVD diagnostics revealed, dependent on the test system and incubation period, considerable differences in the number of correct evaluations for BVDV seropositive samples, most notably when considering the results obtained for pooled milk samples;* ***the best performance for pooled milk samples of all kits, which were used in more than one laboratory, was achieved by the ID Screen® BVD p80 Antibody Competition (and another ELISA test) performed using the long sample incubation protocol. (sic)***					Performance evaluation
5) Albrecht K. *et al*. (2021). **Re-introduction of bovine viral diarrhea virus in a disease-free region: impact on the affected cattle herd and diagnostic implications**. Pathogens, 10(3), 360.	• In this study, animals kept in a naturally re-infected herd were blood sampled seven weeks after the birth of the first PI animal. The collected samples were examined serologically to investigate the capability of a seroneutralisation test and 8 different commercial ELISA systems (including the ID SCREEN®BVD P80 ANTIBODY COMPETITION) for the early detection of a BVDV introduction into a naïve herd. • *Results:* ***In nine of the 18 in-contact animals (50.0%), anti-BVDV antibodies were detected by the microneutralization test. However, when analyzed by different commercially available BVD antibody ELISAs, a high variation of the seropositivity rate was observed. While the ID SCREEN®BVD P80 ANTIBODY COMPETITION showed 100% accordance with the neutralization test, four of the other applied ELISAs only exhibited 83.3% conformity***. *By using Svanovir BVDV Ab Screening,*	Correlation with other techniques		Epidemiological study		Performance evaluation

	Svanovir BVDV Ab biphasisch, and Prio-CHECK® BVDV Ab, three sera scored negatively, although they had reacted positively in the neutralization test. IDEXX BVDV Ab total did not identify two sera as being positive in the neutralization test. In addition, one negative sample resulted in a doubtful measuring range of this ELISA. Only 72.2% accordance compared to the neutralization test was obtained by IDEXX BVDV p80Ab, which did not detect five out of nine sera with neutralizing antibodies. When employing Svanovir BVDV p80 AB and Serelisa BVD/MD AB Mono Blocking, only 61.1% of the sera were interpreted correctly. While Svanovir BVDV p80 AB did not detect seven out of nine antibody-positive sera, four sera produced false-negative results in Serelisa BVD/MD AB Mono Blocking, and some of the SNT-negative samples were false-positives or doubtful. **In this study, from 8 ELISA tests, only the ID SCREEN®BVD P80 ANTIBODY COMPETITION correctly detected all animals in which neutralizing anti-BVDV antibodies were detectable, while all other tests underestimated the seroprevalence, in some cases dramatically**. •					
6) Demil E. *et al*. (2021**). Prevalence of bovine viral diarrhea virus antibodies and risk factors in dairy cattle in Gondar city, Northwest Ethiopia**. Preventive Veterinary Medicine, 191, 105363.	• 339 serum samples from dairy cattle were tested using the ID SCREEN®BVD P80 ANTIBODY COMPETITION. • *Results*: the animal-level antibody prevalence of BVDV in the study area was 26.84 % and the herd-level seroprevalence was 68.3 %.			Epidemiological study		
7) McCarthy M-C *et al*. (2021). **Longitudinal Prevalence of Antibodies to Endemic Pathogens in Bulk Tank Milk Samples From Dairy Herds Engaged or Not in Contract Heifer Rearing**. Front. Vet. Sci. 8:785128.	• **Bulk tank milk** samples were tested using the ID SCREEN®BVD P80 ANTIBODY COMPETITION. • *Results*: seroprevalence 86 % in 2018 and 73% in 2019. •		Particular matrix	Epidemiological study		

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8) Messele Y.E. *et al.* (2021). **Seroprevalence of major infectious causes of dairy cattle reproductive problems in central Ethiopia**. https://doi.org/10.21203/rs.3.rs-1153341/v1	• 86 serum samples were tested using the ID SCREEN®BVD P80 ANTIBODY COMPETITION. • *Results*: overall seroprevalence 38.4%.			Epidemiological study		
9) Meyer G. *et al.* (2021). **Vaccination of sheep with bovine viral diarrhea vaccines does not protect against fetal infection after challenge of pregnant ewes with border disease virus**. Vaccines, 9(8), 805.	• Challenge of ewes with Border Disease Virus after vaccination with BVD vaccines was followed using the ID SCREEN®BVD P80 ANTIBODY COMPETITION. Serum neutralization assays (SNT) of ewes were performed before vaccination, on day of challenge and at the end of the experiment. • *Results*: The two attenuated BVDV vaccines but not the inactivated one, induced seroconversion against NS3 in sheep while the three vaccines induce a neutralizing antibody response against BVDV-1 and BDV-6.	Correlation with other techniques		Experimental study		
10) Acharya M. P. *et al.* (2020). **Screening of major infectious causes of infertility in dairy cattle of Nepal**. In 11th National Workshop on Livestock and Fisheries Research in Nepal (p. 62).	• 368 serum samples from dairy cattle were tested using the ID SCREEN®BVD P80 ANTIBODY COMPETITION. • *Results*: overall seroprevalence of 3.8%.			Epidemiological study		
11) Asnake P. *et al.* (2020). **Seroprevalence of Bovine Viral Diarrhea Virus (BVDV) and Its Associated Risk Factors in Dairy Cattle in and Around Assela Town, South East Ethiopia**. https://doi.org/10.21203/rs.3.rs-128860/v1	• 225 serum samples were tested using the ID SCREEN®BVD P80 ANTIBODY COMPETITION. • *Results*: overall seroprevalence of 8.4%. •			Epidemiological study		
12) Grandoni F, *et al.* (2020) **Assessment of Multicolor Flow Cytometry Panels to Study Leukocyte Subset Alterations in Water Buffalo (*Bubalus bubalis*) During BVDV Acute Infection**. Front. Vet. Sci. 7:574434.	• Flow cytometric evaluations were performed on pregnant **buffalo cows** infected with BVD virus. All serum samples were tested using the ID SCREEN®BVD P80 ANTIBODY COMPETITION. • *Results*: all animals showed seroconversion, between 14 and 27 dpi, and all calves born from these buffaloes had BVDV antibodies (and were negative for viral antigen).		Particular species	Experimental study		

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13) Olum M.O. *et al*. (2020). **A cross-sectional study on infertility and its causes in small holder dairy cattle in selected counties of Kenya**. International Journal of Veterinary Science, 9(4), 534-539.	• 545 serum samples were tested using the ID SCREEN®BVD P80 ANTIBODY COMPETITION. • *Results*: overall seroprevalence of 52.3%. •			Epidemiological study		
14) Irianingsih S. H. *et al*. (2019). **Genetic analysis of NS5B gene from bovine viral diarrhea virus-infected cattle in Central and East Java, Indonesia**. Veterinary World, 12(7), 1108.	• A total of 61 BVDV-positive serum samples from a sera bank originating from active and passive surveillance of cattle that had been tested for BVDV antigen from 2013 to 2017 were used in this study. The BVDV antibody was analyzed using the ID SCREEN®BVD P80 ANTIBODY COMPETITION. • *Results*: Twelve out of sixty-one sera contained BVDV p80 (NS2-3) antibodies (19.7%). The ratios of seropositive and seronegative BVDV p80 to BVDV antigen-positive from 2013 to 2017 were 2/11, 1/13, 6/22, 3/2, and 0/1, respectively.			Epidemiological study		
15) Dänicke S. *et al.* (2018). **Antibody response of growing German Holstein bulls to a vaccination against bovine viral diarrhea virus (BVDV) is influenced by Fusarium toxin exposure in a non-linear fashion. Mycotoxin research**, 34, 123-139.	• Influence of *Fusarium* toxin exposure was studied on antibody response of growing bulls to a vaccination against bovine viral diarrhea virus (BVDV); sera were taken at days 0 (before vaccination), 21, 28, 47, 56, and 70 and tested using the ID SCREEN®BVD P80 ANTIBODY COMPETITION. Sera taken at the end of the study were additionally analyzed by a standard microneutralization against BVDV-isolate. • *Results*: the ID SCREEN®BVD P80 ANTIBODY COMPETITION allowed to follow influence of *Fusarium* dose on antibody response after infection with BVDV; all samples which were tested positive in ELISA were also confirmed to be positive serum in the microneutralization test.			Epidemiological study	Experimental study	
16) Bello S.M. *et al*. (2016). **Detection of antibodies to bovine viral diarrhea virus in cattle presented for slaughter at Sokoto metropolitan abattoir, Nigeria**. Journal of Veterinary Medicine and Animal Health, 8(2), 11-14.	• 372 serum samples from dairy cattle were tested using the ID SCREEN®BVD P80 ANTIBODY COMPETITION. • *Results*: overall seroprevalence of 66.4%.			Epidemiological study		

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GOATS

17) Potârniche A. V. *et al*. (2020). **Herd-level seroprevalence of pestivirus infection in goat population in Poland**. Polish Journal of Veterinary Sciences, 229-233.	• Blood samples from 910 goats (782 females and 128 males) were collected in 62 goat herds and tested for bovine viral diarrhea virus (BVDV) infection using the ID SCREEN®BVD P80 ANTIBODY COMPETITION in a serial fashion. • *Results*: In total, only 7 of 910 goats tested positive which yielded an overall individual-level apparent seroprevalence of only 0.8% (CI 95%: 0.4%, 1.6%). This turned out to be even lower when corrected by Se serial and Sp serial of the ELISA – 0.6% (CI 95%: 0.2%, 1.3%). No males tested positive.			Epidemiological study		
18) Kavoosy M. *et al.* (2018). **Seroprevalence of pestivirus in small ruminants in Khorasan Razavi province, Iran**. Iranian Journal of Ruminants Health Research, 3(1), 11-18.	• Blood samples of 273 sheep and 179 goats were tested for antibodies against the pestiviruses using the ID SCREEN®BVD P80 ANTIBODY COMPETITION. • *Results*: 217 sheep and 127 goats were serum positive; seroprevalence of the virus in all the studied animals was estimated 75.9%			Epidemiological study		

CAMELIDS

19) Tesfaye A. *et al.* (2021). **Seroprevalence of bovine viral diarrhea virus in local Borana cattle breed and camels (*Camelus dromedarius*) in Ethiopia**. Veterinary Medicine: Research and Reports, 141-148.	• Serological investigation was carried out on 219 cattle from 44 herds and 137 camels from 11 herds in contact with the selected cattle herds in Borana zone and 348 camels from 41 herds in Shinille zone. The sera samples were tested using the ID SCREEN®BVD P80 ANTIBODY COMPETITION. In addition, all of the cattle sera were tested using the ID SCREEN®BVD P80 Antigen Capture for identification of persistent infection. • *Results*: Among the 219 cattle tested, 177 (80.82%) were found to be positive for antibodies against BVDV in Borana Zone. Two of the 219 cattle tested (0.05%) were found to be positive with antigen detection ELISA. In addition, out of a total of 137 camels tested, two (1.46%) were found to be positive in this district. Among the 348 camels tested, eight (2.29%) were found to be positive for antibodies against BVDV. In conclusion, this study revealed a high prevalence of infection in Borana cattle. In addition, it recorded the occurrence of infection with BVDV in camel herds. None of the camels tested positive for the antigen of BVDV using antigen ELISA. **The ID SCREEN®BVD P80 ANTIBODY COMPETITION is able to detect antibodies against BVDV in camels.**		Test of particular species	Epidemiological study		

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20) Stanitznig A. *et al*. (2016). **Prevalence of important viral infections in new world camelids in Austria**. Wien. Tierarztl. Monatsschr, 103, 92-100.	• 447 serum samples from 186 llamas and 261 alpacas were examined using the ID SCREEN®BVD P80 ANTIBODY COMPETITION, Serum Neutralisation Test (SNT)and PCR. • *Results*: one sample was positive for BVDV antibodies (0.2%); this positive result was retested by SNT which confirmed the result. None were positive for BVDV nucleic acids. **The ID SCREEN®BVD P80 ANTIBODY COMPETITION is able to detect antibodies against BVDV in New World Camelids, confirmed by SNT.**	Correlation with other techniques Epidemiological study

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