

Comparison of Sensitivity and Specificity of commercial ELISA kits in Thailand for detecting antibody to non-structural proteins of foot and mouth disease virus

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- > Currently, various NSP-ELISA kits capable of detecting antibodies to FMDV are available in Thailand.
- > Therefore, it is necessary to test the efficiency of the appropriated NSP-ELISA kit on various animal sera within the country.
- > The information from the study can be used to consider the selection of appropriate NSP-ELISA kits and achieve maximum benefits.
- > To compare the sensitivity and specificity of commercial ELISA kits available in Thailand

- -Positive serum samples, consisting of 400 samples
- Negative serum samples, totaling 400 samples









- Biovet Foot-and-Mouth Disease Virus Antibody Test Kit, ELISA FMDV NSP-3Bb ELISA (multispecies)
- ID Screen FMD NSP Competition
- VDPro FMDV NSP AB ELISA
- IDEXX Foot-and-Mouth-Disease FMD, Multispecies Antibody Test Kit
- PrioCHECK FMDV NS
- KUcheck-F FMDV-NSP ELISA



Sensitivity values of the six NSP-ELISA test kits **Specificity values of the six NSP-ELISA test kits** Test kit Sensitivity (%) 95% CI **Animal type**

	Cattle	99.22 (383/386)	97.75–99.84	Biovet	Cattle and goats
Biovet	Pigs	100 (14/14)	76.84–100		Pigs
	Total	99.25 (397/400)	97.82-99.85		Total
	Cattle	99.48 (384/386)	98.14-99.94	ID Screen	Cattle and goats
ID Screen	Pigs	100 (14/14)	76.84–100		Pigs
	Total	99.50 (398/400)	98.21-99.94		Total
	Cattle	97.67 (377/386)	95.62-98.93	VDPro	Cattle and goats
VDPro	Pigs	92.86 (13/14)	66.13-99.82		Pigs
	Total	97.50 (390/400)	94.45-98.79		Total
	Cattle	97.93 (378/386)	95.96–99.10	IDEXX	Cattle and goats
IDEXX	Pigs	100 (14/14)	76.84–100		Pigs
	Total	98.00 (392/400)	96.10-99.13		Total
	Cattle	98.45 (380/386)	96.65–99.43	PrioCHECK	Cattle and goats
PrioCHECK	Pigs	100 (14/14)	76.84–100		Pigs
	Total	98.50 (394/400)	96.76–99.45		Total
	Cattle	98.96 (382/386)	97.37–99.72	KUcheck-F	Cattle and goats
KUcheck-F	Pigs	100 (14/14)	76.84–100		Pigs
	Total	99.00 (396/400)	97.46–99.73		Total

	Test kit	Animal type	Specifitity (%)	95% CI
		Cattle and goats	99.00 (99/100)	94.55-99.97
	Biovet	Pigs	100 (300/300)	98.78-100
		Total	99.75 (399/400)	98.62-99.99
	ID Screen	Cattle and goats	100 (100/100)	96.38-100
		Pigs	100 (300/300)	98.78-100
		Total	100 (400/400)	99.08-100
	VDPro	Cattle and goats	100 (100/100)	96.38-100
		Pigs	100 (300/300)	98.78-100
		Total	100 (400/400)	99.08-100
	IDEXX	Cattle and goats	100 (100/100)	96.38-100
		Pigs	100 (300/300)	98.78-100
		Total	100 (400/400)	99.08-100
	PrioCHECK	Cattle and goats	100 (100/100)	96.38-100
		Pigs	100 (300/300)	98.78-100
		Total	100 (400/400)	99.08-100
	KUcheck-F	Cattle and goats	92.00 (92/100)	84.84–96.48
		Pigs	99.00 (297/300)	97.11–99.79
		Total	97.25 (389/400)	95.13-98.62

Diagnostic accuracy	of the six	x NSP-ELISA	test kits

Test kit	Diagnostic accuracy (%)	95% CI
Biovet	99.50	98.72–99.86
ID Screen	99.75	99.10–99.97
VDPro	98.75	97.71–99.40
IDEXX	99.00	98.04–99.57
PrioCHECK	99.25	98.37–99.72
KUcheck-F	98.12	96.93–98.95

- > The sensitivity range 97.50 99.00%, specificity range 97.25 100%, accuracy range 98.12 99.75%, and concordance range 0.96 - 1.00.
- > This study found that the sensitivity and specificity of all six NSP-ELISA kits were statistically similar and significantly.
- > The results can be used as information for deciding to use the test kits.
- > This allows the Department of Livestock Development to procure a wider variety of kits and use them as a guidelines to increase the options for using more NSP-ELISA kits available in the market.

Conclusio