

Introduction/ Objective

- 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

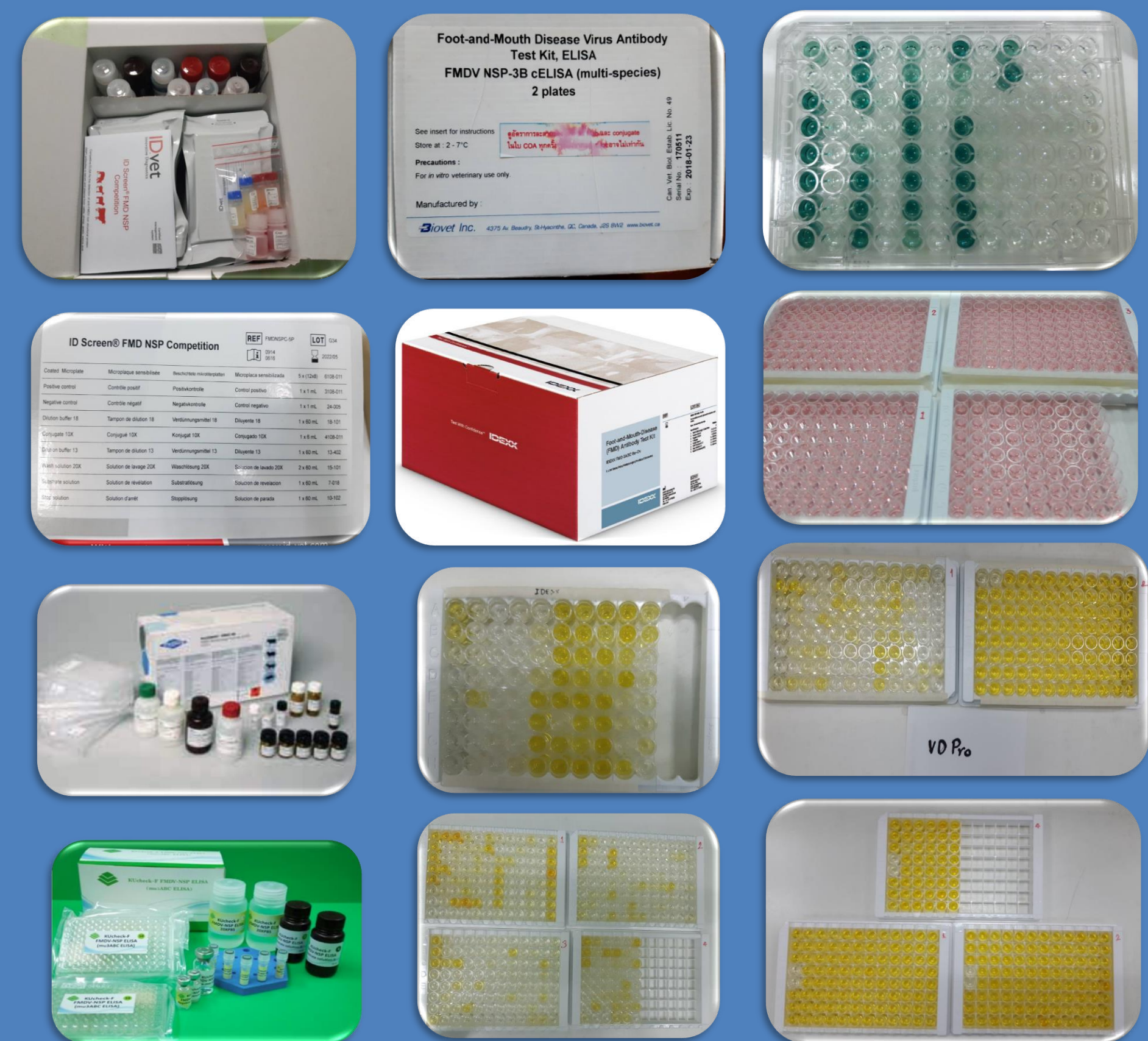
Serum sample

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



Six NSP-ELISA kits

- Biovet Foot-and-Mouth Disease Virus Antibody Test Kit, ELISA FMDV NSP-3Bb ELISA (multi-species)
- 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



Materials and Methods

Results

Sensitivity values of the six NSP-ELISA test kits

Test kit	Animal type	Sensitivity (%)	95% CI
Biovet	Cattle	99.22 (383/386)	97.75–99.84
	Pigs	100 (14/14)	76.84–100
	Total	99.25 (397/400)	97.82–99.85
ID Screen	Cattle	99.48 (384/386)	98.14–99.94
	Pigs	100 (14/14)	76.84–100
	Total	99.50 (398/400)	98.21–99.94
VDPro	Cattle	97.67 (377/386)	95.62–98.93
	Pigs	92.86 (13/14)	66.13–99.82
	Total	97.50 (390/400)	94.45–98.79
IDEXX	Cattle	97.93 (378/386)	95.96–99.10
	Pigs	100 (14/14)	76.84–100
	Total	98.00 (392/400)	96.10–99.13
PrioCHECK	Cattle	98.45 (380/386)	96.65–99.43
	Pigs	100 (14/14)	76.84–100
	Total	98.50 (394/400)	96.76–99.45
KUcheck-F	Cattle	98.96 (382/386)	97.37–99.72
	Pigs	100 (14/14)	76.84–100
	Total	99.00 (396/400)	97.46–99.73

Specificity values of the six NSP-ELISA test kits

Test kit	Animal type	Specificity (%)	95% CI
Biovet	Cattle and goats	99.00 (99/100)	94.55–99.97
	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 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.

Discussion/ Conclusion