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Antibody analysis related to PRRS virus isolation in Mexico

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A serologic profile using the ELISA IDEXX herdchek test was performed over 860 fresh serum samples including all ages and different physiological stages pigs. The antibody survey was applied at 15 productive units, all using multi-site production system, located at 5 different states in Mexico where reproductive failure and respiratory problems had been screened.

The antibody analysis demonstrates the presence of a wide range of antibody titers and varies within each farm at different municipalities. Although the most constant S/P range was between 0.40-3.00 (822-7587), some of this antibodies went over this range, two farms had no PRRS clinical evidence but applied vaccination to prevent the virus presence:

State	N° Farm	S/P Range	Antibody Titer Range
E.MEX	1	0.4-2	822-4877
GTO	2	0.4-2	822-4877
	2	0.4-4	822-10381
	*1	0.4->4.5	822-11803
PUE	3	0.4-3	822-7587
VER	2	0.4-1	822-2290
	1	0.4-2	822-4877
SON	*1	0.4-4	822-10381

*Antibodies by vaccination

The serologic survey was applied to a 30% of the herd in each productive unit. Results show that 535 (62%) serum samples were positive for PRRS antibodies and 325 (38%) samples were negative to PRRS:

Farm	Total sera	Positive antibodies	Negative Antibodies
EMEX I	80	44 (55%)	36 (45%)
GTO I	74	10 (14%)	64 (86%)
GTO II	52	4 (8%)	48 (92%)
GTO III	105	96 (91%)	9 (9%)
GTO IV	90	68 (76%)	22 (24%)
GTO V	66	60 (91%)	6 (9%)
PUE I	115	95 (83%)	20 (17%)
PUE II	102	88 (86%)	14 (14%)
PUE III	57	17 (30%)	40 (70%)
VER I	28	1 (4%)	27 (96%)
VER II	24	8 (33%)	16 (67%)
VER III	22	2 (9%)	20 (91%)
SON I	45	42 (93%)	3 (7%)
TOTAL:	860	535 (62%)	325 (38%)

PRRSV was isolated from serum samples either positive or negative to antibody presence using CL-2621 and/or MARC-145 showing the typical CPE 2-3 days PI. A total of 57 PRRSV isolates were obtained from pigs of all ages and physiological stages at 9 farms located in 4 states of Mexico, where viral titers range between $10^{1.7}$ and $10^{3.5}$ $TCID_{50}$/ml. IFA using SDOW17 and SR30 monoclonal antibody FITC conjugates verified that the viral isolates corresponded to PRRSV.

Farm	Isolate N°	Viral Titer $TCID_{50}$/ml
EMEX I	3	$10^{2.1-3.3}$
GTO I	3	$10^{2.6-5.4}$
GTO III	14	$10^{2.7-3.5}$
GTO IV	8	$10^{2-3.4}$
PUE I	3	$10^{1.7-2.7}$
PUE II	7	$10^{2.4-3.4}$
PUE III	5	$10^{2-2.7}$
VER I	10	$10^{2-2.7}$
VER II	9	$10^{1-7-2.3}$

The isolates from negative antibody PRRS samples demonstrates that a pig considered as serologically negative may be infected with PRRSV and during the viremic period, this pig can spread the virus among the herd. This is why we suggest isolation and ELISA test in order to know the internal spread within the herd and specially before introducing new animals to the farms.