THE EFFICACY OF COMMERCIAL FMD VACCINES IN PIGS IN TAIWAN
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Introduction:
Foot and mouth disease (FMD) is a highly contagious disease of cloven-hoofed animal and has a great potential for damaging livestock industry. The disease has been controlled through vaccination strategy since the first outbreak in Taiwan, 1997. The selection of FMD vaccine strain is according to the vaccine matching test. Although three common vaccines, O/Taiwan, O/Manisa and O/Campos, have passed the matching tests, the applications in pigs still need to be evaluated. We applied three common FMD vaccines in SPF pigs and commercial pigs to evaluate the vaccine efficacy.

Materials and methods:
In experiment I, 30 piglets were chosen randomly from two farrowing-to-finish farms (A farm and B farm) and given one shot of O/Manisa vaccine at 12 weeks-old then monitored for Neutralizing serum(SN) titer every 4 weeks. Five pigs from each farm were challenged with O/TAW/YL/2009 FMDV at 16, 24 and 36 weeks old, respectively. Totally, 15 pigs from each farm were challenged. In experiment II, 15 heads of 8 weeks-old SPF pigs were assigned to 3 groups. Each group was taken one FMD vaccine separately then challenged with O/TAW/PH/2012 after 4 weeks. Totally, three common FMD vaccines were given. Similar trial was conducted on two FMD vaccines as follows. Each of two vaccines was given to five heads of 12 weeks-old pig from one farrowing-to-finish farm. In two experiments, the NS titers at ODPC and protection rates of vaccines were estimated.

Results:
In experiment I, the pigs in farm A presented higher SN antibody level induced by O/Manisa vaccine than that in farm B. Similar difference was observed in protection rate between those pigs from two farms. In experiment II, through one shot of O/Manisa vaccine, the geometric mean of SN titer in SPF pigs was lower than O/TAW and O/Campos vaccine. The protection rate of O/Manisa vaccine in SPF pigs was significant lower than O/Campos vaccine (p<0.05).

Discussion:
In experiment I, we revealed that the higher antibody level the commercial pigs were induced by O/Manisa vaccine, the better protection the pigs were conferred. In experiment II, with limited number of pigs, the antibody induced by O/Manisa vaccine was lower than another two vaccines. The protection rate of O/Manisa vaccine was lower than O/Campos. In the future, we plan to include more farms and pigs in vaccine evaluation trials using recent FMDV isolates (i.e., O/TAW/PH/2012).
**Biography**  Kuo-Jung Tsai, DVM
Dr. Tsai is the assistant research fellow of the Hog Cholera Division, Animal Health Research Institute, Council of Agriculture, Executive Yuan, R.O.C. From 2008 through 2013, Dr. Tsai work in the Epidemiology Division, Animal Health Research Institute and engaged in surveillance and diagnosis of rabies and mad cow disease. Since 2014, his shifted to the Hog Cholera Division and was involved in study on CSF and FMD.