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## Research Note: Study on the effect of an air-driven bumper for hogs on stunning efficacy and carcass quality

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### ABSTRACT

This research is attempted to design and install a compressed air-driven bump-shooter for stunning hogs, and this experiment was conducted to compare the hematology and meat quality of hogs with bumping, electrical and concussion. Also tried to find out whether the bump-shooter does match the need of small-scaled slaughterhouses or not in Taiwan. Experimental results were as follows:

1. The principle of an air-driven bump-shooter is by triggering a bump-needle to penetrate the skull of hogs for effectively collapsed and fainted, in order to bleed the hogs in cope with the requirement of humane slaughtering. This apparatus includes of a powerful air compressor, transmission cable & control panel, balance wheel and bump-shooter.
2. On fact, local meat butchers prefer a non-destructive stunner rather than a destructive one. So we changed original concept and focused on a non-destructive one from initial a destructive one. We also imitate the burst strength of an imported captive bolt stunner (Karl Schermer MKL) to modify and improve the pilot model of an air-driven bump stunner.
3. The carcass quality of hogs, stunned by air-driven bump-shooter, such as for temperature, pH value and meat color score were in normal ranges compared with those obtained from hogs with electrical, concussion stunning.
4. Plasma samples for catecholamines assay were taken from three stunning methods (electrical, concussion and air-driven bumper). There was a common ascending tendency with existence of stress induced. After driving and stunning for hogs, Norepinephrine and Epinephrine were dramatically increased. However, catecholamines data were compared with median rather than mean, due to the scattered nature of their measured data.

Key words: Air-driven bumper, hogs, stunning, carcass quality

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