

## ANIMAL WELFARE

**Title:** The frequency of the HAL-1843 mutation of the RYR gene in dead and non-ambulatory/non-injured pigs on arrival at the packing plant. – **NPB #05-069**

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### Abstract:

Four Midwestern packing plants were visited on 53 occasions and tissue samples were collected from 2019 pigs to determine the frequency of the HAL-1843 mutation of the RYR gene in dead (DOA), non-ambulatory/non-injured (NANI), and normal animals. The pigs sampled came from a total of around 130,000 animals from 454 farms that were transported on 861 trailer loads with ~152 pigs/load, with an average weight of ~125 kg/pig. Frequency of animals with the HAL-1843 mutation was low with only 2.7% of pigs being either homozygous recessive (nn; 0.45%) or carriers (Nn; 2.3%) for the mutation and 97.3% of pigs being homozygous for the normal allele (NN). The mutation was present in all three classes of pig with 1.8% of normal, 1.8% of NANI, and 4.7% DOA animals having at least one copy. There was a trend ( $P = 0.08$ ) for the frequency of carriers to be different between Normal, NANI, and DOA animals (1.64, 1.61, and 3.74%, respectively; SEM 0.93). The 55 pigs with at least one copy of the mutation came from 53 different farms and, therefore, the mutation was relatively widespread, being present, in ~11% of farms sampled. The results of this study suggest that, although the HAL-1843 mutation is still present in commercial pig populations in the U.S., its low frequency means that it is not a major cause of transport losses.

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