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Niche Swine Populations in Minnesota: Understanding 4-H pigs
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As the US pork industry has evolved, disease control has become key to producers' success and sustainability. Newer strategies to combat disease spread include improved isolation and acclimation of incoming livestock; routine PRRS testing of semen; control of personnel entering farms; rigorous sanitation/disinfection of transport vehicles; and better insect & rodent control. However, persistent problems with PRRS and other agents have identified the need to address disease at a regional level.

Commercial production likely constitutes the large majority of the total swine population in most regions. However, other niche populations exist, such as feral pigs, show pigs, and pet or backyard pigs. These populations may be both vulnerable to, and reservoirs of, agents that afflict the commercial sector. As such, understanding the demographics and operations of niche swine populations may be important to underpin regional control efforts.

The objectives of this project were to characterize the 4-H pig population in Minnesota; to document 4-H pig management practices; and to assess 4-H participant knowledge of swine disease and biosecurity.

The project was conducted with the cooperation of the Minnesota 4-H state office with a view to identifying needs for education of participants regarding disease prevention.

Methods:

A list of 4-H swine participants from the past 5 years (2001-2005) was obtained from the state 4-H office. The data were analyzed to describe the spatial distribution of 4-H participation in the state of Minnesota, and its variation over this 5-year period. These data were contrasted with the distribution of commercial swine farms and pigs compiled by the NASS agricultural census.

A survey instrument was developed to assess the management practices and knowledge of participants. The target population for the survey was all participants registered to show 4-H pigs in 2005 who were in the 7th grade or higher. A sample of 200 individuals was randomly selected and the survey was administered by mail. An Access database was constructed to manage the respondent data.

Results and Discussion

The demographic analysis has been completed, and the analysis of survey data will be completed by the end of August. The current survey response rate of 65% suggests high interest level in this group.

The distributions of counties with respect to number of commercial farms (reported by NASS) and number of 4-H participants have very similar patterns (Figure 1) indicating high concentration in particular counties.

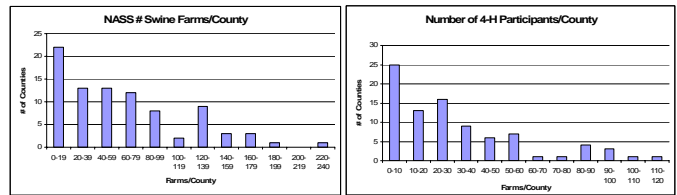


Figure 1: Frequency distribution of counties by numbers of swine farms and 4-H participants

However, the number of 4-H pigs was not highly correlated with the number of farms or pigs in a county.

Pearson's Correlation R ² Values for Swine #'s and 4-H #'s			
	Avg 4-H'ers	NASS Farms	NASS Pigs
Avg 4-H'ers	1.00	0.44	0.42
NASS Farms	0.44	1.00	0.81
NASS Pigs	0.42	0.81	1.00

The regional concentration of 4-H activity, and relatively poor relationship with commercial production is likely to be typical of other niche sectors of the swine population. As such, the role that such sectors play in the regional epidemiology of disease is likely to be highly variable. As part of any initiative to undertake regional efforts to control disease, objective assessment of all niche populations is advisable to guide risk assessment and extension and educational needs.