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Addendum 1

Comparison of horse owner biosecurity surveys in 2022 and 2024 to evaluate biosecurity and disease prevention for the horse industry

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Introduction: As part of the USDA APHIS NADPRP project entitled "Increased biosecurity and disease prevention for the horse industry" two horse owner surveys were completed. The objective of survey #1 (2022) was to determine horse owners' understanding and knowledge of biosecurity practices for preventing infectious diseases in the United States. The methods and results of survey #1 was reported in White N, Pelzel-McCluskey A. *Cross-Sectional Survey of Horse Owners to Assess Their Knowledge and Use of Biosecurity Practices for Equine Infectious Diseases in the United States. Animals* 2023;13.

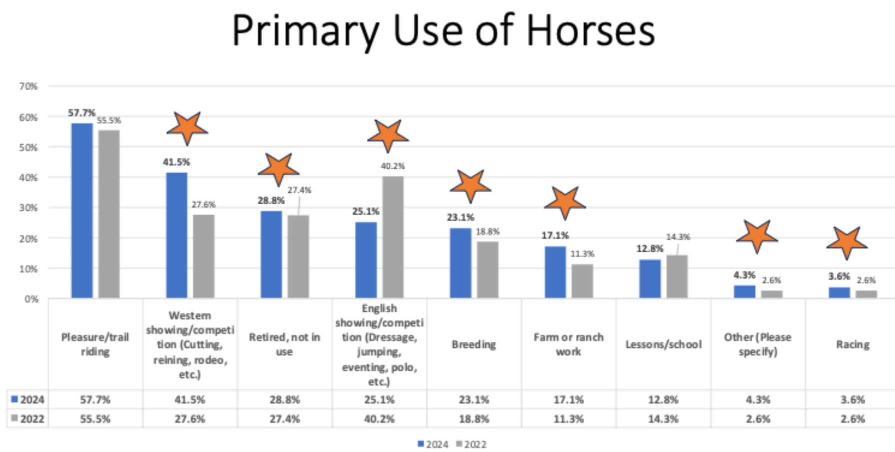
Methods: Survey #2 was identical to survey #1 and similar to survey #1 it was distributed by sending requests to EDCC subscribers, EDCC facebook followers and to a list of horse owner organizations, which then sent emails to their members. The email requested participation and provided a website link to start the survey. Two requests were sent to the email lists 6 weeks apart to the following email addresses. Statistical analysis was completed using the same cross-tabulation software used in survey #1 to determine differences in each response based on horse use. Significant diffences in the percentage (proportional) to the responses to each question was compared between the surveys. When the % change (proportion) was greater than +/- 0.20, the increase or decrease is considered significant between surveys.

Results: A total of 2413 responses were collected from survey #1 and 2044 from survey #2. There was no change in the distribution of respondents between the surveys. Significant differences by horse use identified for each survey are presented in Table 1. These included differences in vaccination, biosecurity planning, use of isolation, disease risk, monitoring for diseases, co-mingling of horses, sanitation, medical decision making and health record requirements for horse events.

Significant differences in the percentage change for each responses (increase or decrease) in survey #2 compared to survey #1 are listed in table 1 and summarized in the following list and graphs. Stars on the graphs indicate a significant difference between the surveys.

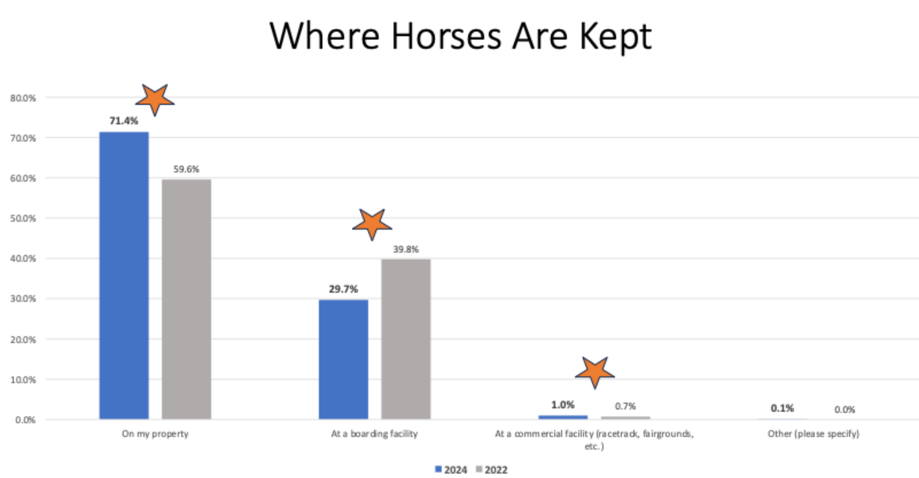
- Increased responses for owners with 6-9 or 10 or more horses
- Increase western, breeding, farm/ranch (Figure 1)

Figure 1



- Decrease in responses from Canada
- Decrease in trainer medical decision making
- Increase horse residence on owned and commercial facilities with a decrease in boarding facilities (Figure 2)

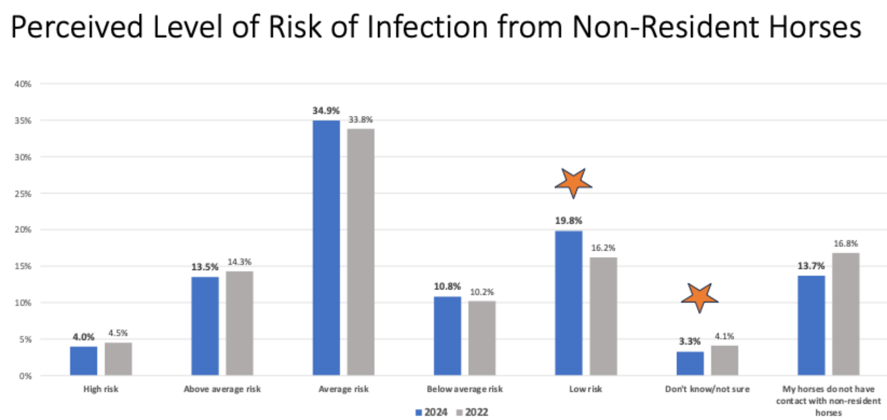
Figure 2



- Decrease in sources of information from national equestrian associations

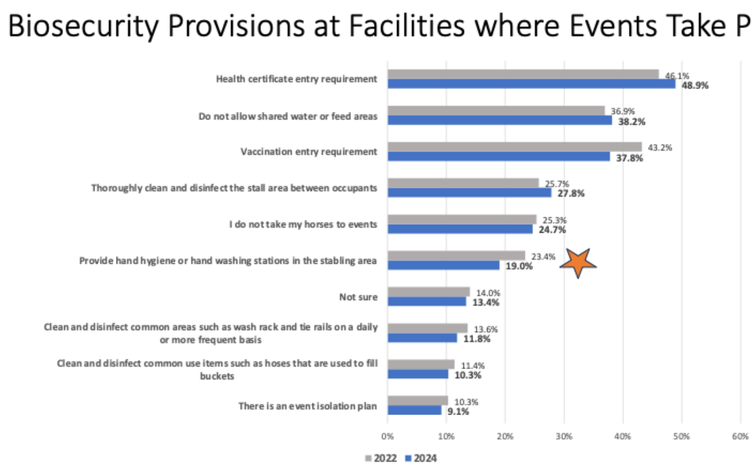
- Increase in lack of knowledge if their horse is vaccinated or don’t vaccinate
- Increase in owner administered vaccines
- Increase in knowledge about having a facility biosecurity plan
- Increase in lack of knowledge about having a temporary isolation requirement for new horses
- Increase in perceived low risk associated with contracting a respiratory infection from non-resident horses (Figure 3)

Figure 3



- Increase rating of risk of infection due to movement of people on and off property
- Decrease rating of risk of infection from sharing equipment
- Decrease rating of effectiveness of with temperature monitoring
- Decrease rating of not sure about the effectiveness of biosecurity to prevent infection
- Decrease in the availability of hand sanitation at facilities (Figure 4)

Figure 4



- Increase in video as first choice in having biosecurity information presented

Discussion: The results of both surveys suggest that most owners are not concerned about the risk of disease or the use of biosecurity to prevent disease spread particularly when horses are exposed to non-resident horses. While most owners make medical decisions for their horse(s), a large majority (88%) use veterinarians for medical information to prevent infectious diseases. The proportional increases or decreases in the responses to the survey questions is consistent with the results of two veterinarian surveys (AAEP members and State Animal Health Officials) which took place during the same time period.

Although there were some differences in the proportion of horse use between the surveys, the differences are most likely due to the lack of specificity in selecting the respondents and the survey distribution rather than an actual change in biosecurity for a particular use. The increase in respondents with western show horse may be reflected in the increase in owner vaccination of their horses. The increase for concern of people movement and decrease in the concern for sharing equipment is likely due to bias from respondents rather than true shift within the industry.

Due to the small number of respondents relative to the distribution in both surveys and the bias inherent in the decision to participate, it is impossible to determine if the created and distributed of biosecurity information during the study made a difference in increasing the level of knowledge of how to prevent infectious diseases. A larger response rate is needed to make any conclusions about differences in biosecurity awareness over two years between the surveys.

Both surveys indicate the need for educational programs on understanding of disease risk and use of biosecurity to increase the awareness to mitigate infectious disesaes. Although basic biosecurity education is needed throughout the industry, the differences in responses based on horse use can be used to focus on specific owner demographics. Based on the response to both owner surveys, there are several biosecurity applications and techniques which should be increased to help prevent disease spread. These include reliance on temperature monitoring, isolation of new horses introduced to facilities, minimizing risks of disease spread during horse competions, entry requirements such as vaccination and health certificates at events, and an emphasis on having biosecurity plans for facilities and events where horses co-mingle.