

Survey and Evaluation of North Carolina Equine Anthelmintic Practices

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Background

- North Carolina has an active horse industry, with the NC Horse Council reporting over 306,000 horses in the state and a \$3.44 billion economic impact as of 2017¹
- The American Association of Equine Practitioners (AAEP) released updated guidelines for parasite control in 2019²
- Deworming agents are made available at farm supply stores and online retailers, allowing owners to manage their horses' deworming regimens without direct veterinary oversight
- Anthelmintic resistance is prevalent and contributes to many intestinal parasite control guidelines²
- Fecal egg counts (FEC) are recommended to evaluate an individual's parasite shedding status (low, medium, high)²
- Performing a fecal egg count reduction test (FECRT) is the only method available to detect parasite resistance²

Anthelmintic Classification	Agents
Benzimidazoles	Fenbendazole Oxibendazole
Tetrahydropyrimidines	Pyrantel pamoate Pyrantel tartrate
Macrocyclic Lactones	Ivermectin Moxidectin
Isoquinoline-Pyrazine	Praziquantel

Objective

- The aim of this study is to evaluate anthelmintic practices among horse owners in the state of North Carolina
- This survey also assesses which methods of educational outreach to which participants would be most receptive

Methods

- NC State Qualtrics used to collect survey responses
- No identifying information collected
- **Study Distribution**
 - North Carolina Horse Council
 - North Carolina Extension
 - North Carolina-based equine social media groups
- **Inclusion Criteria**
 - Age ≥18
 - Resident of NC
 - Owns one or more horses that live in NC
- **Data Collection Categories**
 - Screening questions
 - Equine demographic information
 - Pasture management
 - Deworming practices
 - Education

Results

Responses meeting inclusion criteria: 380

Equine Demographic Information

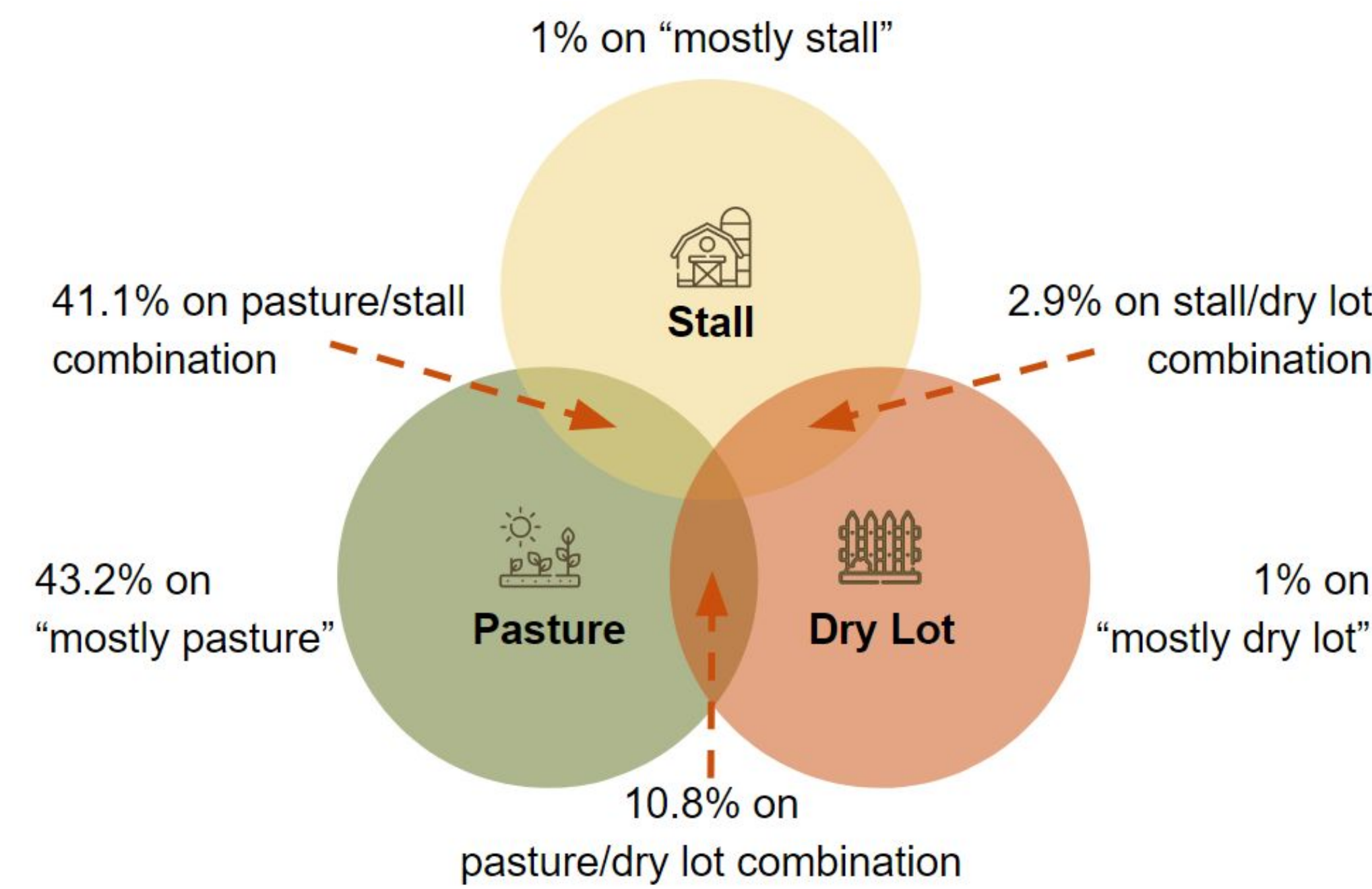
- All participants owned at least one horse at least 3 years of age
- 10.5% (40 participants) also owned a horse under the age of 3

Pasture Management

- 51.6% of horse owners with horses on pasture reported using rotational grazing

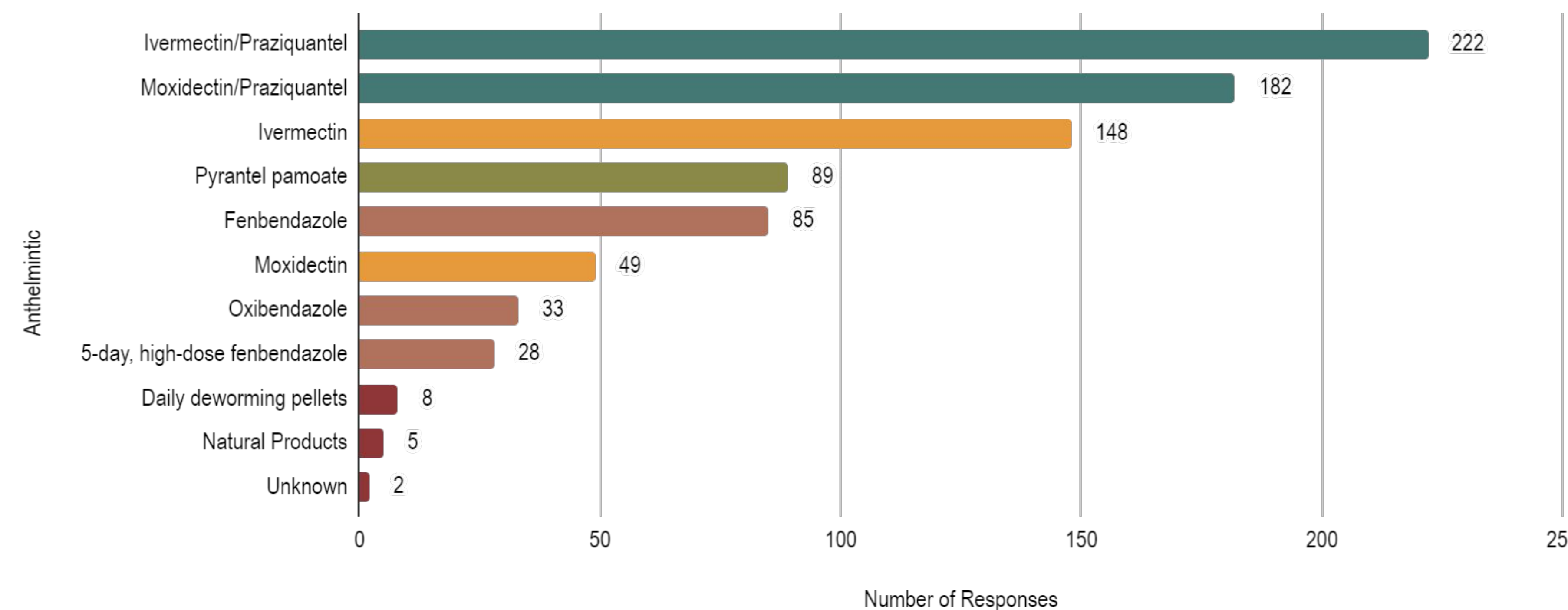
Deworming Practices:

- 96.8% (368/380) of respondents have dewormed their horse(s) in the past 365 days
- In a select all that apply question with 480 responses, 274/480 obtained their deworming agent from a farm supply store, 165/480 from an internet supplier, and 38/480 from a veterinarian
- 58% (22/38) of those who deworm horses under the age of 3 change their practices based on age



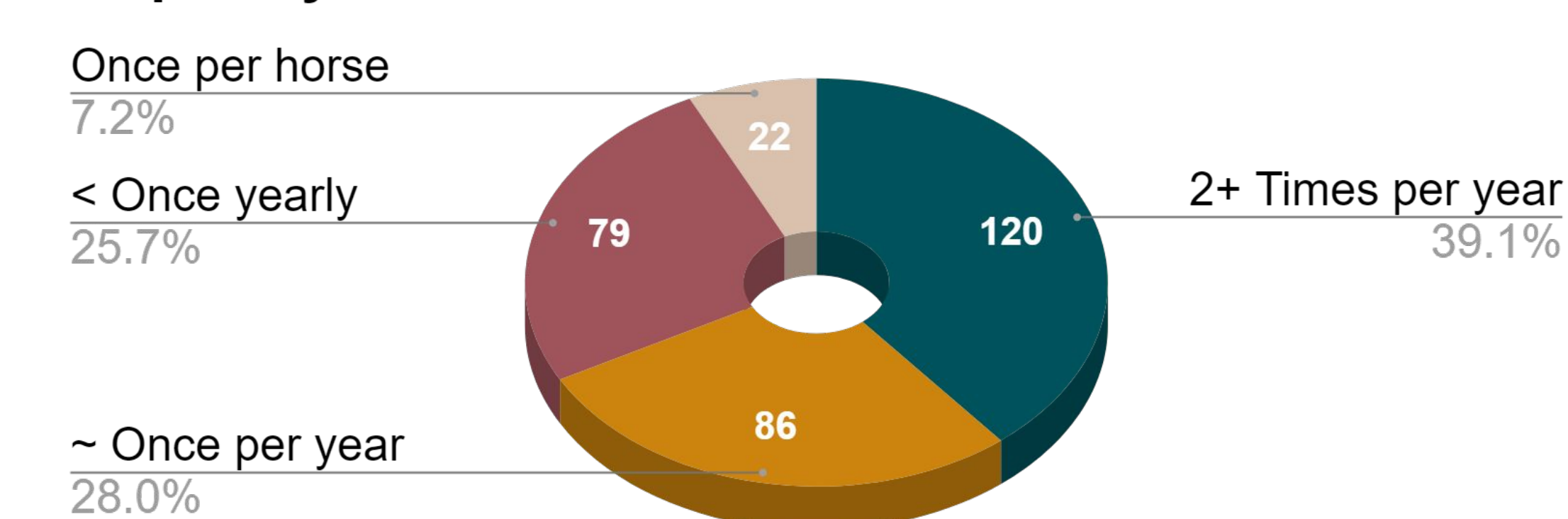
Number of times dewormed/year	Number of responses (%)
One	4 (1%)
Two	160 (43.5%)
Three	56 (15.2%)
Four	50 (13.6%)
Individualized	98 (26.6%)

Anthelmintic Agents Used in Past Year



- 80.8% (307/380) of participants reported having a FEC performed on their horses, while 92.5% of those participants reported using the FEC results to guide deworming therapy
- 70.5% of respondents feel like their regimen works "very well", and 23.9% feel like their regimen works "somewhat well"
- Regarding concern about anthelmintic resistance to deworming agents, 24.2% are "very concerned," 50.8% are "somewhat concerned," and 25% are either "not very concerned" or "not at all concerned"

Frequency of FEC



Results

Education

- When given a selection for preferred outreach methods, participants selected 2.5 options on average

Would you be interested in educational materials on optimal deworming regimens?	Yes	Maybe	No
	234/380	100/380	46/380
	61.6%	26.3%	12.1%

Method	Count
Email	200
Social Media	195
NC State Website	165
Local Equine Organization	101
Virtual Event	92
In-Person Event	84
Other	14

Discussion

- Most of the respondents reported that their horses live mostly or partially on pasture, where pasture management is critical to internal parasite spread. Rotational grazing is one of the primary methods of reducing parasite load, but around half of respondents do not utilize this practice.
- 300 participants utilized an anthelmintic agent with praziquantel at least once in the past year, which is recommended by the AAEP to provide tapeworm coverage due to poor testing sensitivity.
- Regarding educational materials, many horse owners would accept or consider additional information. In-person events and virtual events were less selected overall, which may indicate owner preference for asynchronous opportunities.
- Anthelmintic resistance is a growing concern, and veterinary professionals should be involved in parasite management for best outcomes. However, limitations exist, including that fecal testing is often more expensive than the treatments.
- Pharmacists and pharmacy staff should be actively involved in providing resources for anthelmintic management. Sources of education on parasite management include veterinarians, state Extension services, and the AAEP guidelines.

Disclosures

The authors, Dr. Tessa Dimick and Dr. Emily Sorah, have no conflicts of interest to disclose.

References

1. North Carolina Horse Council Economic Impact by Sectors. North Carolina Horse Council. 2020. Available at: <https://nchcouncil.com/wp-content/uploads/2020/07/nchc-economic-impact.pdf>
2. Internal Parasite Control Guidelines. American Association of Equine Practitioners. 2019.