MONTGOMERY COUNTY HORSE STUDY

Compiled by the Montgomery Soil Conservation District for the Montgomery County Department of Economic Development

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Acknowledgments

The Montgomery County Horse Survey was conducted by the Montgomery Soil Conservation District (MSCD) for the Montgomery County Department of Economic Development. Over the course of two years, many people helped see this project to completion, most notably Barbara Brown, Marshall Rea and Eddie Fransceschi of the MSCD, Jeremy Criss, Mary Nichols, and Melissa Pugh of the Agriculture Services Division of the Department of Economic Development, J.G. Warfield of the Natural Resources Conservation Service, Doug Tregoning and Dan Ludwig of the Cooperative Extension Office, Malcolm Commer, Jr., of the University of Maryland, and Barbara Selbst of Montgomery County's Department of Information Systems and Telecommunications.

Most of all, special thanks go to the residents and horse owners of Montgomery County, who throughout the process have been so supportive of this effort.

—Allison Rogers
Equine Outreach Specialist
Montgomery Soil Conservation District

Comments and Perspective from Douglas M. Duncan

During my tenure as the County Executive, I have gained a tremendous appreciation for Montgomery County's agricultural industry and all of its components. I am fascinated by the evolution of agriculture as it continues to be an economic force, controlling 30 percent (93,000 acres) of the County. As the equine or horse component of the agricultural industry has grown rapidly over the past 25 years, it became apparent that its contribution and importance to the County needed to be studied in depth.

In 1999, I responded to a request from leaders of the County's agricultural community and Agricultural Advisory Committee (AAC) to conduct a comprehensive study of the horse industry in Montgomery County. The findings and outcomes of this two-year study are outlined in this report, and I trust that you will find the report informative and impressive. The intent of the study focuses on the need to determine not only the number of horses and horse operations in the County but also to assess the social and economic impact that horses have on the County as a whole. This assessment coupled with the study's findings will assist the County Government and its policy makers in the development of specific policies and initiatives to help ensure a thriving future for the horse industry.

This study evaluated both the annual and total contribution that horses provide the County's economy. The survey that was conducted as part of the study determined that horses contribute a grand total of $196,155,646, which includes both annual and fixed costs associated with horses and horse operations. It is difficult to compare this amount with the Maryland Cooperative Extension Service's 1992 economic contribution figure, as the two incorporate very different information. However, no one would argue that the horse industry in Montgomery County has grown substantially, and thus the economic contribution has increased as well.

With this upward trend in mind, it is important for public officials at all levels of government to better understand and identify the importance and benefits that horses provide. A change in public policy should translate into a friendly environment with respect to permitting requirements for riding stables and related buildings for horse operations in general. As the number of horses and horse operations increases, the County also will need to increase the level of assistance to the owners of these operations in the area of soil conservation and nutrient management plans. It is important to understand and recognize the connectivity between the 14,337 horses identified in the report and the traditional farming operations that produce hay, straw and grain to support these horses. Without horses, there would not be the tremendous hay industry that exists today. Horses are an integral part of agriculture, and they should be incorporated into the definition of agriculture itself.

Thank you for your interest in the horse industry of Montgomery County, and I hope you enjoy the report.

—Douglas M. Duncan,
County Executive
Montgomery County

Comments and Perspective from George Lechlider

When the Agricultural Services Division of Montgomery County's Department of Economic Development approached the Montgomery Soil Conservation District (SCD) about conducting a survey of the county's horse industry, we eagerly agreed. The face of agriculture in Montgomery County has changed significantly in the past quarter century, and one of the most noticeable differences is the incredible ballooning of the horse population.

With the urbanization of Montgomery County, the pressure to develop farmland has intensified to the point where many remaining farmers can't afford *not* to sell their land. "The Commission on the Future—2000 and Beyond," of which I am a member, has been charged with finding new uses for Montgomery County farmland that will keep green spaces open. As is obvious to anyone familiar with this county, horses are already wildly popular and take up a significant amount of acreage. Horsekeeping would seem to be an excellent alternative use of farmland. But in order for the county agencies to adequately promote this nontraditional use of agriculture, we needed to know more about how horses contribute to the county and state and the obstacles to staying in Montgomery County that horse owners face.

There was a second reason for the Montgomery SCD's involvement in this survey. For green space to be environmentally beneficial, it must be managed in a way that protects our natural resources. To prevent soil erosion and water quality problems, pastures must be well cared for, muddy areas stabilized, and animals kept out of streams. When I first began farming, horses and mules were part of everyday life and crucial to success. We had the knowledge, equipment and incentive to keep their pastures in good shape. Today, however, most horses in the county are kept by people with nonagricultural backgrounds and limited time for pasture care.The majority aren't familiar with the pasture management and erosion prevention services offered by the Soil Conservation Districts and other agricultural agencies. The Montgomery SCD saw the horse survey as a way to introduce ourselves to horse owners throughout the county and hopefully help them manage their land to protect its resources.

An unexpected result of the SCD's involvement with this study has been the realization that many people keep horses on non-agriculturally assessed properties in Montgomery County. Once our mailing list was updated to include these additions, we realized our previous mailings had been reaching only a small percentage of the horse community. As the number of horse owners on our mailing list has grown, so has attendance at our horse-related educational events.

While horse owners already are benefiting from being brought into the agricultural loop, the agencies can, in turn, learn quite a bit from the horse community. As we are quickly finding out, horse care requirements differ from those of other livestock. Some management practices promoted by the Soil Conservation Districts may need to be adjusted to accommodate these differences before horse people will adopt them. The information from this study will allow the Districts to better help horse owners. In return, I hope horse owners will study these results and discuss with our office the best management practices for their individual situations.

—George Lechlider
Chairman
Montgomery Soil Conservation District Board of Supervisors

Estimated Economic Impact of the Montgomery County Horse Industry

A detailed explanation of how each of these figures was derived appears in Appendix 1, page 11, of this report.

A. Projected total number of horses in Montgomery County:	**10,837**
B. Estimated number of horses boarded out of county by Montgomery Countians:	**3,500**
C. Total estimated number of horses (A+B):	**14,337**
D. Total amount spent annually on horses and riding by survey respondents:	**$13,589,743**
E. Projected amount of fixed horse-keeping costs:	**$145,829,500**
F. Amount spent annually on horses and riding, extrapolated to entire county*:	**$71,935,046**

***This figure includes an extrapolation of (D) as well as annual contributions derived from fixed horse-keeping costs (E).**

Montgomery County Horse Study Executive Summary

Introduction

While horses have always been an integral part of the Washington, D.C. metropolitan area, their role in society has changed significantly over the last century. One hundred years ago, approximately 25 million horses and mules were at work in the United States. With the advent of motorized vehicles and mechanized farm equipment, that number plummeted to about 2 million by mid-century. However, the number of horses soon began to creep back up. The difference was that their primary role had changed from beast of burden to pleasure mounts.

"Horse farm" is a somewhat new concept as well. Even when there were 25 million equids in the United States, there were few horse farms, except in the big racing states. Most horses and mules were kept as accessories to pull plows and carriages and carry people. Rarely was the horse the primary focus of a farm. Today, however, horse keeping is big business in Montgomery County, where approximately 100 properties board or train other people's horses. In total, the county has more than 1,000 horse properties, although many of them have five or fewer horses.

Because the horse farm is a new concept, the agriculture industry has had difficulty deciding whether horses are livestock and whether horse properties should be considered farms. One thing is certain, however: Horses rely on pasture land for exercise, sustenance and mental health. Whereas a century ago most horse owners were experienced horsemen and farmers, today's typical horse owner has little farming experience. The result of this change is that horse pastures are suffering. Without other resources, horse owners must rely on agriculture agencies for assistance and education.

Regardless of whether horses meet the current definition of livestock, the government and agricultural community should recognize that horse farms make up more than 20,000 acres in Montgomery County alone. By helping them manage their pastures, agricultural entities are helping conserve green space and support other ag operators, such as hay, grain and straw producers.

Methodology

The Montgomery County Horse Survey was conducted to achieve two specific goals: Gauge the size, scope and economic impact of the horse industry in Montgomery County and get a better understanding of the management practices of the county's horse property owners.

The survey questionnaire was divided into three parts. The first section focused on issues and interests of horse owners in Montgomery County. The second section, the economic impact portion, was kept brief to not overwhelm the respondent and therefore maximize the number of responses and the quality of information. The questionnaire did not ask for financial data on such things as property taxes, land and equipment costs, business costs, etc. Nor was the income generated or costs incurred from racing included. So the financial information listed on page *vi* of this report is a conservative figure. Finally, the last section dealt with how horses are managed in this area.

The questionnaire, a copy of which is included in Appendix 2 of this report, was sent to a specific audience: owners of agricultural-assessed land, potential horse properties and the Montgomery SCD horse mailing list. People who take riding lessons or board horses at other properties were not targeted for this survey. Instead,

the data provided by the property owners would be extrapolated to estimate the size and scope of the county-wide horse community.

More than 1,800 surveys were mailed out: Half came back at least partially completed. Of these, slightly less than half reported that they enjoyed some involvement with horses. Surprisingly, the majority of the agricultural-assessed property owners reported that they are not involved with horses. Because more than half of the horse properties in Montgomery County are not ag-assessed and therefore not on our mailing list, the owners of those properties had not been receiving information about various agricultural programs or regulations (such as the Water Quality Improvement Act) that might be of benefit or relevant to them.

Findings

Using the information provided by survey respondents, a picture emerged of the average horse property in Montgomery County. For instance, the vast majority of horse properties are small operations: 7.6 horses on 15.8 acres. The typical respondent keeps horses for pleasure, not profit. Trail riding is far and away the favorite equestrian past-time, although many of the respondents also participate in at least one of the "English" sports, such as jumping, dressage, eventing and fox-hunting or -chasing. Considering trail riding's popularity, it's understandable that the issues of most concern to horse people in Montgomery County are the duo of loss of open space and access to public lands. Also of concern are the amount of government regulation and the number and condition of horse facilities in the area. For-profit operations understandably think the lack of profitability and/or increasing costs, in addition to property taxes, are critical issues.

Because lush pastures hold soil in place and act as a filter for nutrient runoff, one of the Montgomery Soil Conservation District's priorities, as it pertains to horse properties, is to promote good pasture management. The data from this survey indicates which management practices produce the best results. Keep in mind, however, that these results are based on the respondents' understanding of various management practices. For instance, according to the responses to the management questions, nearly two-thirds of horse property owners claim they compost stall waste, drag pastures to break up manure, mow fields to control weeds, turn horses out onto "sacrifice" areas to protect wet pastures, allow each pasture time to rest, and fertilize and lime pastures. And yet only one-third of the respondents described their pastures as good. Nearly two-thirds rated their pastures as fair. Seven percent admitted their fields were in poor shape.

While fertilizing, liming and rotating pastures all appeared to positively affect pastures (determined by comparing pasture ratings by respondent's who conducted these practices against pasture ratings by those who didn't), stocking rate seemed to have the most significant impact on pastures. On page 7, two pie charts compare how people with two or fewer acres per horse rated their pastures against how people with more than two acres per horse described their pastures. The number of "poor" pastures plummets as the acreage per horse increases, and the number of "good" pastures more than doubles.

On page 9, two more pie charts show the difference stocking rates make on well-managed pastures. Of the people who said they performed at least three recommended pasture management practices, such as fertilizing, liming, rotating pastures, etc., 67 percent rated their pastures as fair and 30 percent rated their pastures as good. But when that same group was split up according to stocking rate, of those properties that had two or fewer acres per horse, only 24 percent rated their pastures as good. However, the number who described their pastures as poor almost tripled. On the other hand, the properties that provided more than two acres per horse fared much better: 56 percent described their pastures as fair, and 42 percent rated their pastures as good.

As mentioned earlier in this summary, the financial section of the questionnaire was carefully considered to maximize the number of responses. Still, the total figure listed on page *vi* shows that the horse community contributes a significant amount—almost $200 million—to Montgomery County and the surrounding area. Considering that horses are the primary consumers of the hay produced in the area, and also are a substantial market for grain and straw, they are vital to the survival of agriculture in Montgomery County.

Not illustrated in the data (except for the outstanding return rate) was the willingness by the horse owners in Montgomery County not only to cooperate with the survey, but to do what they can to conserve our natural resources. The results of this survey will go a long way toward helping us help them protect the county's land and water.

Recommendations

Based on the responses from survey recipients and day-to-day communications with area residents, the number of horses in Montgomery County is likely to continue to increase each year. However, we also believe that the rate of growth in horse operations overall will slow down as the availability of land declines. The findings from this survey will assist the County in expanding educational outreach to assess and clarify the respondents' understanding of how to balance the needs of the horse with effective land management.

One of the reasons for the less-than-optimal condition of many horse properties is that few of the private agricultural service providers are able to work on small parcels. Until those companies are better able to work with the hobby farmers in this area, the Montgomery SCD should follow other Maryland SCDs' lead by making available pasture-maintenance equipment, such as a core aerator to help remedy the severe soil compaction inherent to horse operations and a drag to break up and spread manure in pastures.

Another issue that is becoming more and more critical is manure management. With the passage of the Water Quality Improvement Act, anyone with more than eight animal units or who grosses more than $2,500 per year must have a nutrient management plan. As part of the plan, animal owners must account for how their manure is disposed. Many horse properties in Montgomery County who are required to have a nutrient management plan are already having difficulty finding acceptable ways of disposing of their stall waste, either because they don't have enough land to spread it and the cost of having it hauled away is prohibitive or commercial haulers already have more clients than they can handle. Composted horse manure makes an excellent fertilizer and soil amendment. But most horse operations don't have the room or the manpower to devote to the composting process. There is a great need for regionally located manure composting facilities, or at least a drop-off point, where the owners of livestock—not just horses—can bring their manure. Gardeners, nursery operators, and landscapers all could make use of the final product. Nominal fees could be charged at both ends to help offset operating costs of the facility.

First and foremost, though, the Maryland Department of Agriculture, the Montgomery County Government and the agricultural industry need to decide how and where horses fit into their grand schemes. Are they livestock, deserving of the benefits and respect other agricultural operators are afforded? Or are they companion animals? Does Montgomery County want to conserve valuable open space and protect hay producers by encouraging horse owners to stay in the county? Until these questions are answered, horses will continue to be a neglected resource, without any clear definition or role in the county.

Montgomery County Horse Survey Results

GENERAL

Question 1. Respondents were asked to check the statement(s) that best applied to their situation. **Responses: 772**

Of those respondents who are involved with horses,

- 79.69% keep horse(s) on their own property.
- 7.08% lease property to house horses.
- 6.15% board horse(s) at a boarding facility and keep no horses on their property.
- 1.23% manage a horse facility that they do not own.
- Less than 1% take riding lessons but don't own or lease their own horse.
- Less than 1% live in Montgomery County but keep horses elsewhere.

Of all respondents:

- 52.59% are not involved with horses in any capacity.
- 5% plan to have horses on their property one day.

Question 2. Why do you keep horses/ride? **Responses: 326**

■ recreation	59.82%
■ business	20.25
■ both	19.94

Question 3. If business, what kind? (Rank according to predominance, with 1 indicating primary focus of operation.) **Responses: 102**

■ boarding	55.88%
■ training	42.16
■ breeding	40.20
■ instruction	34.31
■ racing	15.69
■ other	10.78

Most common combinations:

■ boarding, training, and instruction	15.69%
■ breeding and racing	6.86

Note: Other responses included ponies, horse are, showing, cutting cattle, sales, polo and leasing.

Table 1. The nature of respondents' relationship to horse properties.

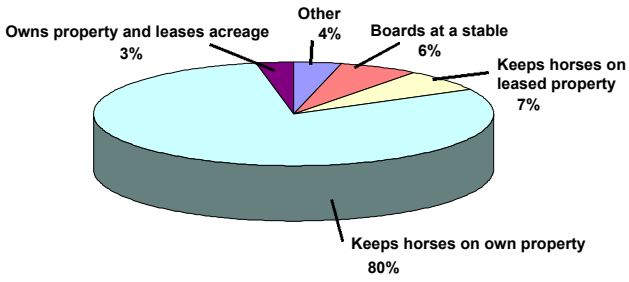


Table 2. Equine involvement of respondents.

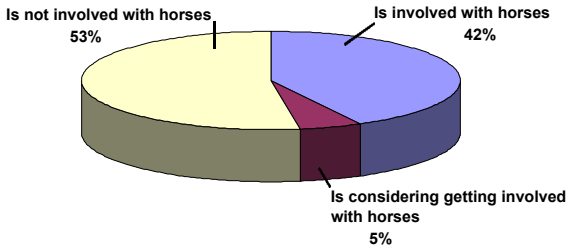
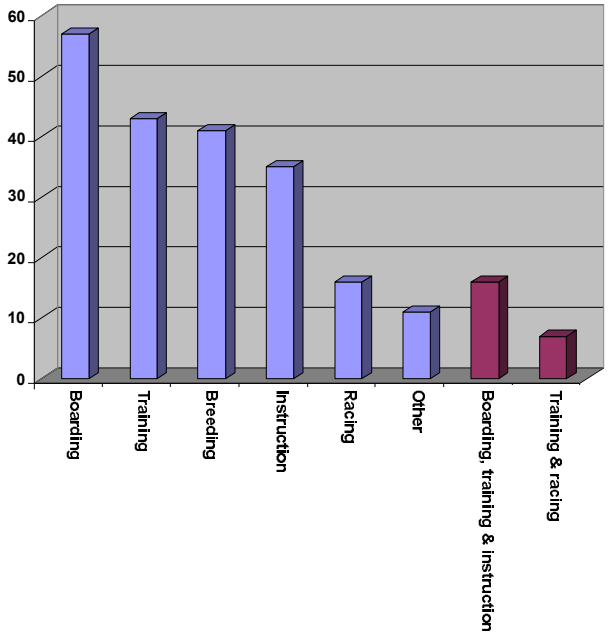


Table 3. Nature of equestrian-related businesses among respondents.



Question 4. Are horses your primary source of income?
Responses: 132

Yes	24.24%
No	75.76

Question 5. What are the primary uses for your horses?
Responses: 260

- pleasure 233
- show or competition 89
- breeding 40
- other 11
- racing 5

Note: Other responses included pet, retired, therapeutic riding.

Question 6. From the list below, rank up to three equestrian activities in which you participate (with 1 being the most popular and 3 being the third most popular).
Responses: 260

- trail riding 211 votes
- lessons/instruction 101
- showing 84
- dressage 76
- eventing 62
- foxhunting 61
- endurance riding 24
- racing 23
- other 20
- rodeo & related events 16
- polo 13
- driving 12
- vaulting 2
- jousting 2

Note: Other activities mentioned included pony club, hunter pace, hunter/jumper, parades, competitive trail riding, saddle seat equitation, and drill team.

Question 7. Rank the three issues you feel are most critical for the Montgomery County equine community and your activities.

- quality of horse activities, facilities and/or services (A) 73 votes
- attracting new individuals to horse industry (B) 28
- current laws and policies related to income taxes (C) 37
- government (county, state and/or federal) land use/environmental regulations (D) 84
- increasing competition from other entertainment sources (E) 15
- lack of profitability and/or increasing costs (F) 63
- liability insurance (costs and/or availability)(G) 66
- loss of open space to development (H) 218
- number of horse activities and/or facilities (I) 28
- property taxes (J) 65
- loss of access to public lands (K) 146
- other (L) 15

Table 4. Most common uses of respondents' horses.

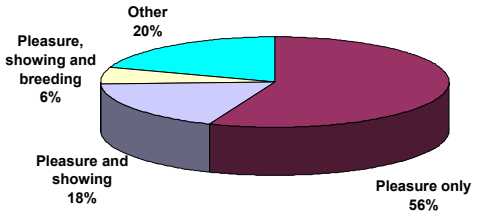


Table 5. Most popular equestrian activities.

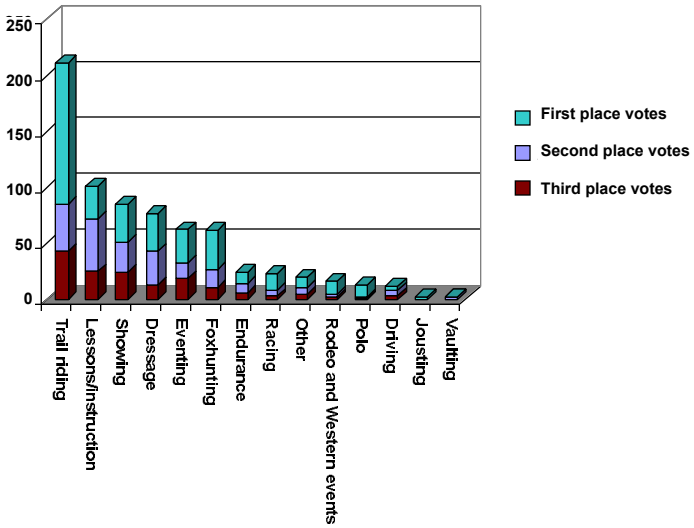
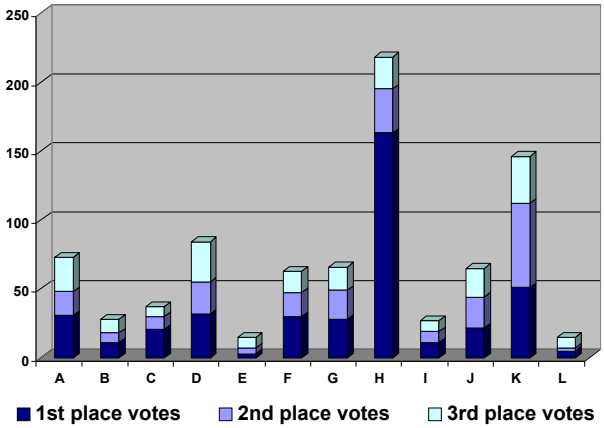


Table 6. Issues of concern to Montgomery County equestrians.



Note: Other issues mentioned included: "too many horse owners without land, encroachment by equestrians on private farms and forests," "federal withdrawal on winning ticket hurts bettors," "need a public cross-county training facility," "more horse easements through new neighborhoods," "stronger laws against abuse, speeding and honking traffic," "government overregulation," "continuity of trails," "snobbery from English riders," "loss of safe access to trails," "lack of trails," "more rescues for retired horses," "riding and bike paths, accessibility of feed stores," "publicity of sports."

ECONOMIC IMPACT

Question 8. How many people do you pay or exchange services with to help with your horse operation (excluding seasonal employees, farriers, veterinarians, etc.)? **Responses:309**

- 1-3 139
- 4-8 35
- more than 9 13
- none 121

Question 9. How many seasonal workers do you employ *annually*? **Responses: 263**

Total: 309
Average: 1.17

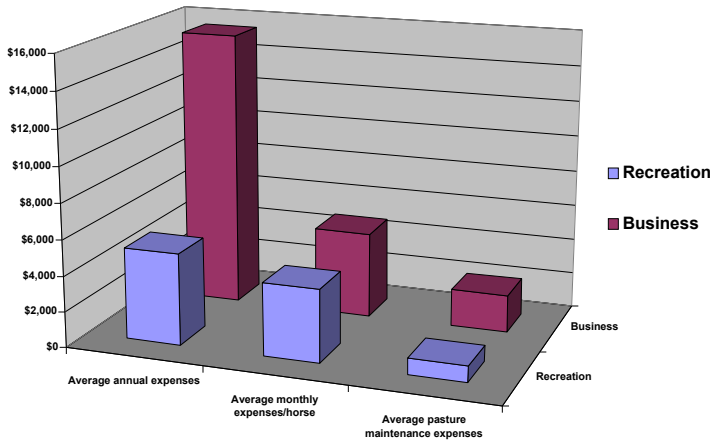
Question 10. How many hours of unpaid labor do you estimate are devoted *monthly*to your operation? (Include yourself, family members, unpaid help from friends, etc.) **Responses: 279**

Total: 24,725 hours monthly
Average: 88.62 hours monthly (2.95 hours/day)

Question 11. What are your household's average *annual* expenses of such activities as riding attire, tack, showing, trailer upkeep, health and grooming items, breeding, horse training, rider instruction? **Responses: 241**

Total: $2,592,461 annually
Average: $10,757 annually

Table 7. Comparison of average annual costs between equestrian businesses and recreational equestrian properties.



Question 12. What is your average *monthly* maintenance expense per horse (including farriery, veterinarian services, feed, bedding)? **Responses: 262**

Total: $101,439 monthly
Average: $387 monthly

Question 13. What is your average *annual* pasture-maintenance expense (including fertilization, seeding, liming, weed control, mowing, fencing)? **Responses: 233**

Total: $385,650
Average: $1,655

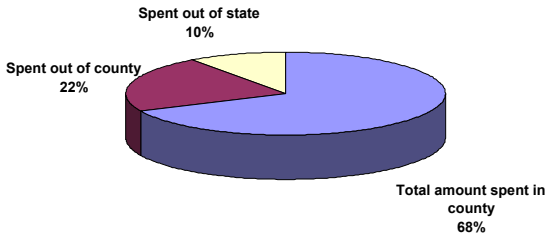
Question 14. What percentage of your total horse related expenditures are made out of county? **Responses: 252**

Average: 22%

Out of state? **Responses: 219**

Average: 10%

Table 8. Percentage of money spent in Montgomery County by respondents.



MANAGEMENT

Question 15. How many horses reside on your property? **Responses: 301**

Total: 2,284
Average: 7.6

Question 16. How many horses currently on your property are temporary (expected to stay less than 6 months)? **Responses: 278**

Total: 209
Average: 0.8

Question 17. How many of the horses that reside on your property do you own? **Responses: 290**

Total: 1,122
Average: 4

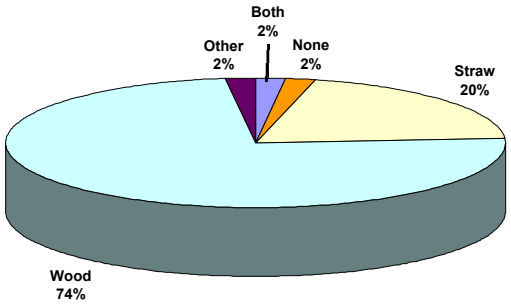
Question 18. How many of the horses that reside on your property do you lease from someone else? **Responses: 278**

Total: 101
Average: 0.4

Question 19. On average, how much of a 24-hour period do your horses spend in stalls? **Responses:285**

0-4 hours per day	54.74%
4-8 hours per day	10.88
8-12 hours per day	23.86
12-16 hours per day	5.61
16-24 hours per day	1.40
Combinations of above	3.51

Table 9. Stall bedding material used among respondents.



Question 20. What type of bedding is used? **Responses: 265**

wood shavings or sawdust	73.58%
straw	20.00
other	1.51
none	1.89
wood shavings and straw	2.26

Note: Other responses included shredded paper, shredded leaves, bluestone, rubber mats,and shredded construction wood.

Question 21. What factors affect your choice of bedding? **Responses: 265**

ease of use	27.41%
health of horses	20.08
availability	15.64
cost	15.44
disposability	13.51
all of the above	7.92
2 or more factors	57.36
3 or more factors	29.81

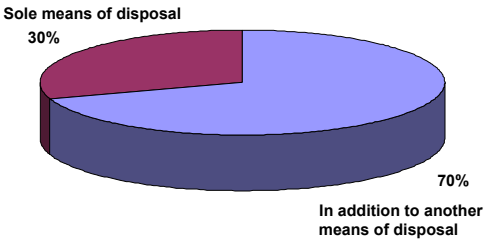
Question 22. Do you compost soiled bedding? **Responses: 265**

Yes	66.00%
No	34.00

Question 23. How do you dispose of soiled bedding? (Mark each response that applies.) **Responses: 270**

■ pile and leave to degrade	43.33%	117 votes
■ spread it on nongrazed land	42.96	116
■ spread it on grazed land	37.04	100
■ pile and leave as well as one other method	30.37	82
■ give away to nurseries, gardeners, etc.	26.67	72
■ more than two methods	17.78	48
■ pay someone to haul it away	14.44	39
■ pile and leave to degrade as only method	13.33	36
■ haul it away yourself	8.15	22
■ sell or give to mushroom farmers	1.48	4
■ other	.37	1

Table 10. Percentage of respondents whose sole means of stall waste disposal is to pile and leave to degrade.



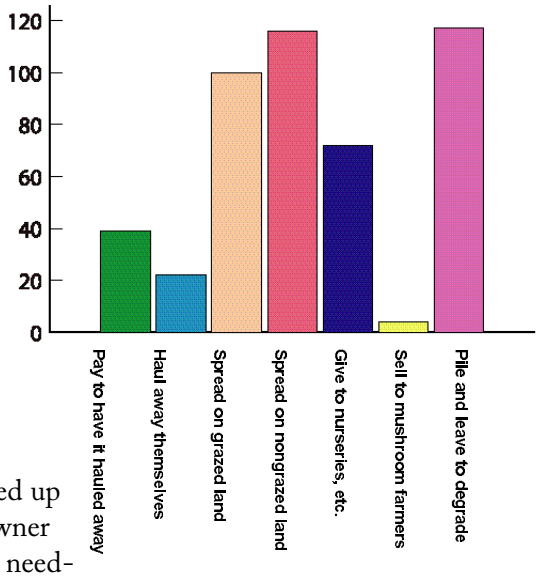
Question 24. Do you drag your pastures to break up manure? **Responses: 285**

■ Yes	63.16%
■ No	36.14

If so, how often? **Responses:172**

■ monthly	21.51%
■ every six months	16.86
■ yearly	11.63
■ every three months	9.30
■ every four months	9.30
■ bi-monthly	6.40
■ semi-monthly	5.23
■ as needed	4.65
■ weekly	4.07

Table 11. Respondents' methods of stall waste disposal.



If not, why?
The most common responses were that the manure was picked up manually (9 responses), mowing breaks up manure (7), the owner was concerned about spreading parasites (3), and that it's not needed (3). Other responses included: birds spread manure, rain washes it away, and that it's broken up during hay making.

Question 25. If you do not have a pasture harrow, would you consider leasing one short-term to drag your pastures? **Responses: 162**

■ Yes	41.98%	68 votes
■ No	55.56	90
■ Maybe	2.47	4

Question 26. Do you mow fields to control weeds? **Responses: 290**

■ Yes	97.24%
■ No	2.76

If so, how often? **Responses:264**

■ weekly	4.2%	■ every three months	6.8
■ bi-weekly	11.7	■ every four months	8.3
■ every three weeks	4.5	■ every six months	8.7
■ monthly	20.1	■ yearly	3.0
■ every six weeks	2.7	■ as needed	22.0
■ every eight weeks	5.3		

If not, why? No tractor (1).

Question 27. How often do you deworm your horses? **Responses: 281**

- 6 times/year 63.35
- 1 to 5 times/year 29.18
- daily 5.34%
- as indicated by fecal egg count 0.71
- never 0.36

Question 28. How is water delivered to your horses' pastures? **Responses: 288**

- buckets or troughs with well water 23.96%
- well water 17.71
- buckets or water trough 13.54
- automatic waterer 8.68
- running surface water, such as creek or spring 4.51
- running surface water and buckets or troughs 4.51
- well water and automatic waterers 4.17
- running surface water, buckets or troughs, and well water 3.82
- public water with buckets or troughs 3.13
- public water 1.73
- non-running surface, such as pond, lake or reservoir 0.69

Question 29. What type of fencing do you use? **Responses: 295**

- wood 41.72%
- wood and electric 10.00
- wood and woven wire 7.93
- wood and high-tensile wire 7.59
- wood, high-tensile wire and electric 5.17
- high-tensile wire 2.76
- electric 2.76
- wood and barbed wire 2.76
- wood, vinyl and woven wire 2.07
- vinyl 1.38
- woven wire (also called "diamond mesh," "v-mesh" or "horse" wire) 1.38
- barbed wire 1.03

Question 30. What is the predominant grass species in your pastures? **Responses:291**

- mixed grasses 47.41%
- mixed grasses/legumes 16.61
- orchardgrass 13.49
- don't know 9.34
- tall fescue 5.54
- fescue mix 3.12
- bluegrass 2.42
- timothy 0.35
- other 0.35

Note: Other response was weeds.

Question 31. What type of hay do you typically feed during the winter? **Responses: 285**

- timothy 31.93%
- timothy/alfalfa mix 13.69
- orchard grass 10.53
- orchard grass/clover mix 4.91
- orchard grass/alfalfa mix 3.51
- alfalfa 1.40
- other 0.35

Question 32. What type of hay do you typically feed during the summer? **Responses: 287**

- timothy 31.36%
- don't feed hay 21.95
- timothy/orchard grass 13.94
- orchard grass 7.67
- timothy/alfalfa mix 5.92
- orchard grass/clover mix 4.53
- orchard grass/alfalfa mix 2.79
- alfalfa 0.70
- fescue 0.35
- other 0.35
- don't know 0.35

Question 33. How many acres of pasture are available for your horses? **Responses: 294**

- Total: 4,645 acres
- Average: 15.8

Question 34. How many separate pastures? **Responses: 285**

- Average: 3.81

Question 35. Of the acreage available for pasture, how much is leased? **Responses: 274**

- Total: 941 acres

Question 36. Do you turn your horses out onto wet pastures? **Responses: 282**

- Yes 74.82%
- No 25.18

Table 12. How respondents with two or fewer acres per horse rated the quality of their pastures.

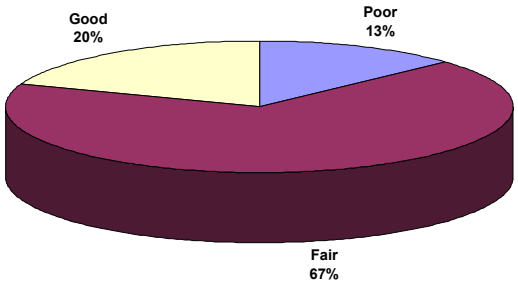
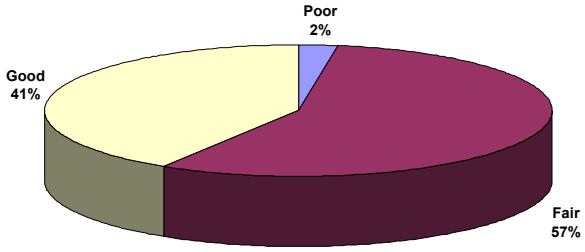


Table 13. How respondents with two or fewer acres per horse rated the quality of their pastures.



Question 37. Do you have "sacrifice" areas that the horses can be turned out into when they can't be turned out in the pastures? **Responses: 280**

- Yes 59.64%
- No 40.36

Question 38. If so, what is the surface of the sacrifice area? **Responses: 166**

- earth 60.8%
- bluestone 12.7
- sand 7.2
- other 2.4

Note: Other response was wood.

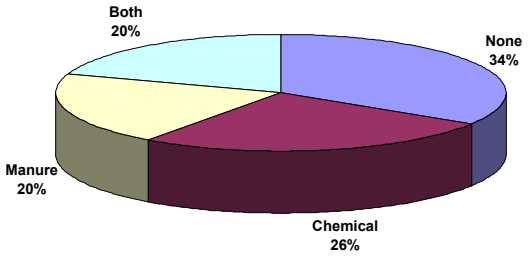
Question 39. Are your pastures grazed continuously (not allowed a rest period of at least a week)?
Response: 284

- Yes 32.75%
- No 67.25

Question 40. Are horses rotated from pasture to pasture? **Responses: 283**

- Yes 69.96%
- No 30.04

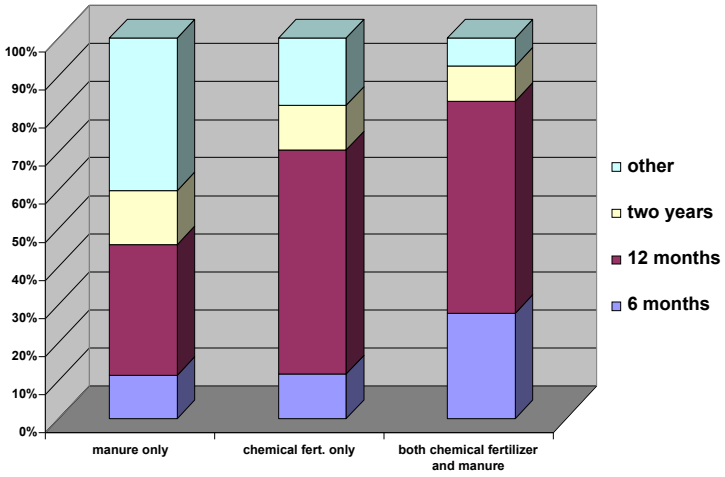
Table 14. Type of fertilizer used by respondents.



Question 41. Typically, how often are horses rotated to a different pasture? **Responses: 187**

- as needed 22.46%
- monthly 18.72
- biweekly 10.70
- weekly 10.16
- every 12 weeks 8.56
- every 16 weeks 6.95
- every 16 months 4.81
- every 8 weeks 4.28
- every three weeks 3.21

Table 15. Rate of fertilizer application by type.



Question 42. How long is each pasture allowed to rest? **Responses:179**

- as needed 21.79%
- two weeks 17.32
- one month 15.64
- four months 13.35
- one week 9.50
- three months 8.94
- two months 5.59
- three weeks 5.03
- six months 4.46

Question 43. What type of fertilizer do you apply to your pastures? **Responses: 281**

- none 33.81%
- chemical 26.26
- manure 20.14
- both 19.78

Note: Four respondents volunteered that they don't fertilize for fear of founder/laminitis. Two hadn't owned the property long enough to warrant fertilizing, and one didn't because she "has Quarter Horses."

Table 16. How respondents who do not apply fertilizer rank the quality of their pastures.

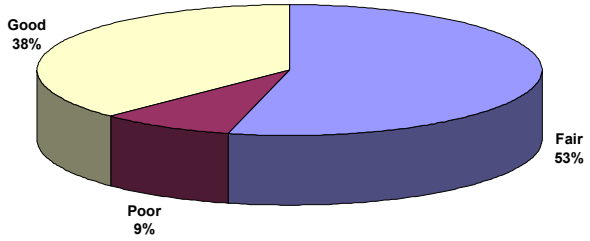
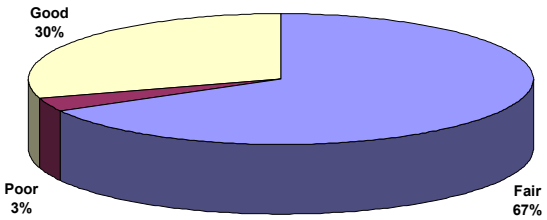


Table 17. How respondents who applied some fertilizer, either chemical, manure, or both, ranked the quality of their pastures.



Question 44. How often do you fertilize your pastures?
Responses: 169
See Table 15.

Question 45. How much fertilizer do you typically use?
Note: Because so few respondents answered this questions and their answers were so varied, the results were not tabulated

Question 46. Do you lime your pastures to correct the pH level? **Responses: 280**

- Yes 63.12%
- No 36.17

Question 47. If so, how often? **Responses: 164**

- every year 37.80%
- every two years 19.51
- every three years 16.46
- as needed 12.80
- every five years 4.87
- every 6 months 4.27

Question 48. How would you rate the condition of your pastures? **Responses: 290**

- Good—no bare spots and lush grass 31.72%
- Fair—few bare spots and adequate grass cover; some weeds 60.69
- Poor—many bare spots and inadequate grass cover; numerous weeds 6.90

Question 49. What is the main purpose of your pastures? **Responses: 289**

- source of both nutrition and exercise 74.39
- source of exercise 13.15
- source of nutrition 12.46

Question 50. Do you have a nutrient management plan? **Responses: 290**

- Yes 26.30%
- No 73.70

Question 51. Do you have a soil and water conservation plan? **Responses: 288**

- Yes 22.65%
- No 77.35

Table 18. How those who do not apply lime rate the quality of their pastures.

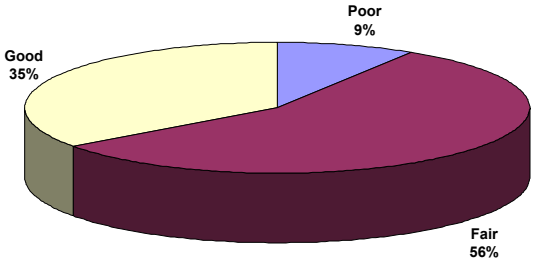


Table 19. How those who do apply lime rate the quality of their pastures.

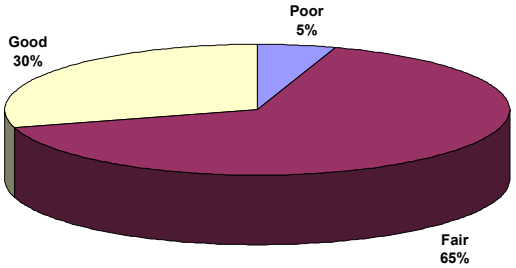


Table 20. How respondents who performed at least three best management practices (fertilizing, liming, rotating pastures, keeping horses off wet pastures) rated their pastures.

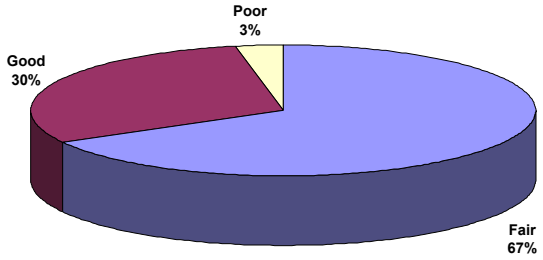


Table 21. How respondents with two or fewer acres per horse and who perform at least three best management practices (fertilizing, liming, rotating pastures, keeping horses off wet pastures) rate their pastures.

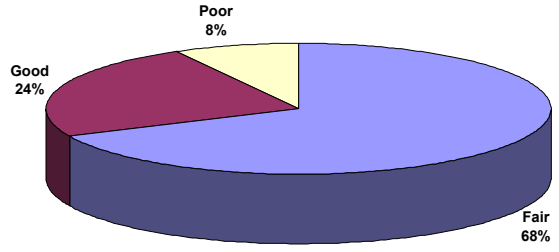
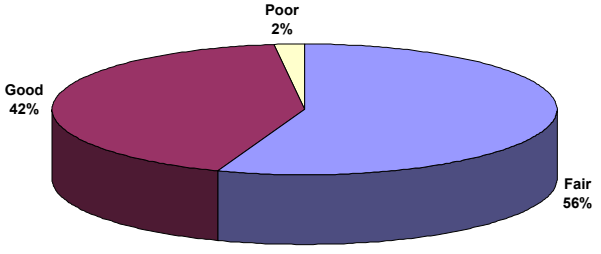


Table 22. How respondents with more than two acres per horse and who perform at least three best management practices (fertilizing, liming, rotating pastures, keeping horses off wet pastures) rate their pastures.



Appendix 1
Updated 4/18/04

Estimated Economic Impact of the Montgomery County Horse Industry

A. Projected total number of horses in Montgomery County: 10,837

[The 301 respondents who answered this question kept a total of 2,284 horses on their property, for an average of 7.6 horses per property. Add to this the number of horses housed at licensed stables, and the average increases to 10.41 horses per property. 1998 aerial photos and other sources reveal approximately 783 horse properties. Add 33 percent to this number to account for unidentified horse properties and properties built since 1998, and the total number of horse properties in the county increases to approximately 1041. Multiplying the number of properties by the average number of horses per property comes to 10,837.]

B. Estimated number of horses boarded out of county by Montgomery Countians: 3,500

[This figure is based on the percentage of total expenditures (question 14 of the survey) multiplied by the projected total number of horses in Montgomery County.]

C. Total estimated number of horses (A+B): 14,337

D. Total amount spent annually on horses by survey respondents: $13,589,743

Question 11 from survey (annual riding expenses) $2,592,461
+Question 12 (avg. mo. horse maint. exp.) x Q15 (no. of horses/prop.) x 12 months + 10,611,632
+Question 13 (annual pasture maintenance expenses) + 385,650
$13,589,743

E. Projected amount of fixed horse-keeping costs*

Item	Avg. cost x No.	Total	Annual Contribution**
tractor:	$6,000 x 1,000	$6,000,000	$500,000
manure spreader:	$1,000 x 300	$300,000	$48,000
truck:	$30,000 x 2,000	$60,000,000	$10,800,000
trailer:	$10,000 x 1,200	$12,000,000	$1,080,000
small outdoor arena:	$15,000 x 150	$2,250,000	$225,000
small indoor arena	$120,000 x 50	$6,000,000	$400,000
outbuildings, including barns and run-in sheds:	$15,000 x 1,200	$18,000,000	$1,200,000
fencing***:	$8,500 x 4,327	$36,779,500	$7,355,900
Subtotal			**$21,608,900**

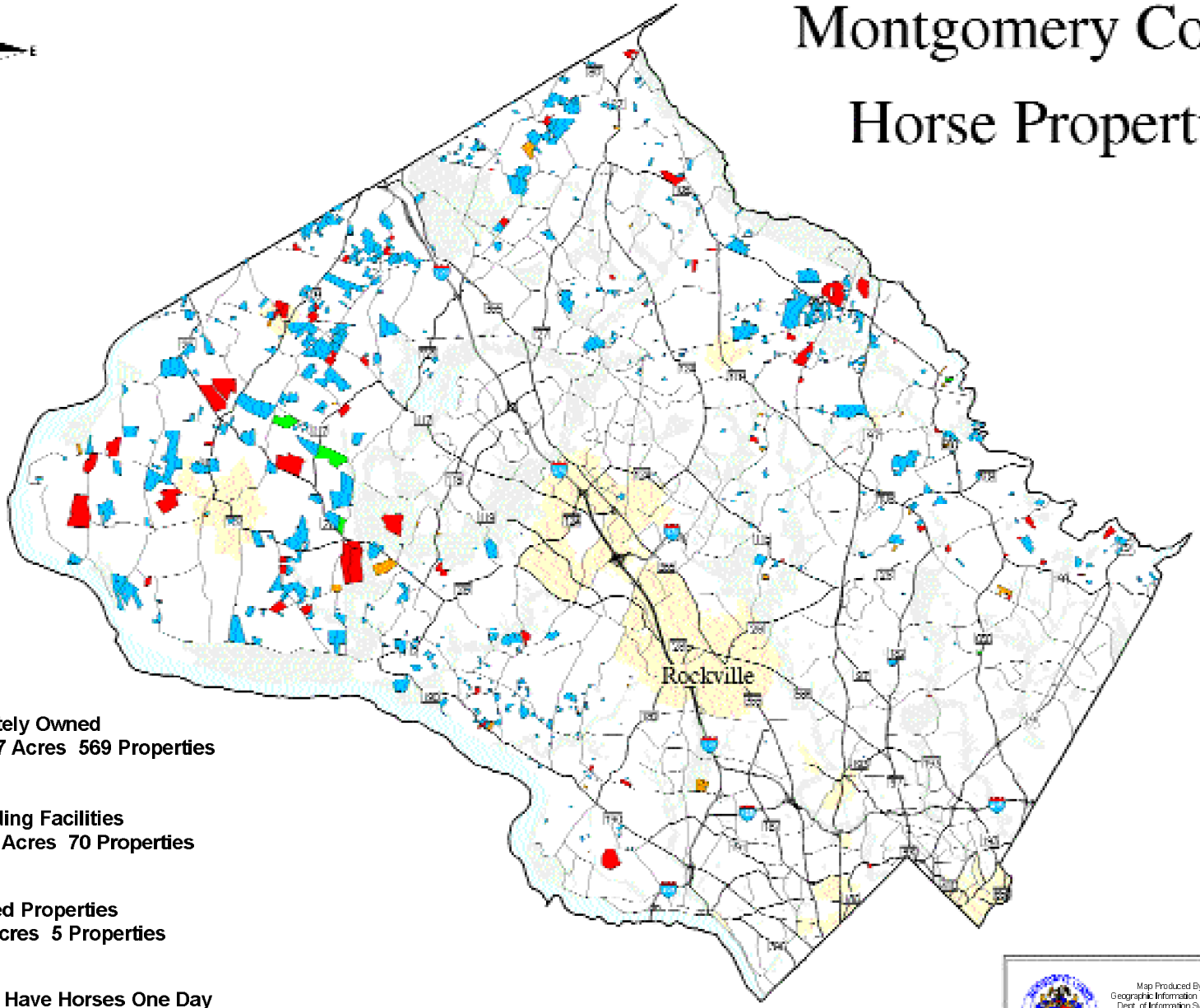
F. Amount spent annually on horses, extrapolated to entire county****: $84,855,896

Avg. of Question 11	$10,757
+ Avg. of Question 12 x 12 (mos.) x 10.41 (average # of horses/property)	+ 48,344
+ Avg. of Question 13	+ 1,655
Subtotal	**60,756**
x 1041 (total number of properties)	x 1041
	= $63,246,996
+ annual contribution of fixed costs (E)	+ $21,608,900
Total annual costs	**$84,855,896**

*This list does not include the purchase price of the horses themselves, which varies too widely to estimate, nor does it include the purchase price of the property or taxes.
**The annual contribution was derived for each item by subtracting a salvage value, if appropriate, from the average initial cost of each item and dividing the resultant figure by an average useful life of the item. That figure was then multiplied by the number of those items in the County. For instance, we estimated that the average initial cost of a tractor was $6,000, the salvage value would be $1,000, and that a tractor's lifespan was 10 years. Six thousand minus 1,000 and divided by 10 is $500. If there are 1,000 tractors on Montgomery County horse properties, then $500 multiplied by 1,000 equals $500,000, which is the yearly contribution for tractors.
***Avg. farm size = 16 acres; avg. no. of pastures = 4; average pasture size = 4 acres. To fence one four-acre pasture would cost approximately $8,500 at $5/linear foot. If there are more than 17,310 acres of horse properties, then there are 4,327 four-acre pastures.
****Respondents were instructed to include the costs of riding, competing, boarding, feeding, horse health care, farriery, and property maintenance.

Appendix 2

Montgomery County Horse Properties



Privately Owned
11,867 Acres 569 Properties

Boarding Facilities
3,568 Acres 70 Properties

Leased Properties
386 Acres 5 Properties

Might Have Horses One Day
513 Acres 39 Properties

Map Produced By:
Geographic Information Systems
Dept. of Information Systems
and Telecommunications
Montgomery County, Maryland
Date: January 25, 2001

Appendix 3

Montgomery County Horse Survey

NOTE: YOUR RESPONSES TO THIS SURVEY WILL BE KEPT STRICTLY CONFIDENTIAL.

Please fill out one survey per household. If someone leases your property for the purpose of housing horses, have them complete the survey. If you believe this was sent to you in error, please answer only the first question. Return survey, completed or otherwise, in the postage-paid envelope **by April 30.** If you have any questions or comments, call Allison Rogers, of the Montgomery Soil Conservation District, at (301) 590-2854.

GENERAL

1. Check the statements that best apply to your situation:
_____ I keep horse(s) on property I own.
_____ I plan to have horses on my property one day.
_____ I lease property to house horses.
_____ I manage a horse facility that I do not own.
_____ I live in Montgomery County but keep horses elsewhere.
_____ I board my horse(s) at a boarding facility and keep no horses on my own property.
_____ I take riding lessons but don't own or lease my own horse.
_____ I am not involved with horses in any capacity.

2. Why do you keep horses/ride?
_____ recreation
_____ business

3. If business, what kind? (Rank according to predominance, with 1 indicating primary focus of operation.)
_____ boarding
_____ breeding
_____ training
_____ instruction
_____ racing
_____ other (specify: _____)

4. Are horses your primary source of income? Yes _____ No _____

5. What are the primary uses for your horses?
_____ pleasure
_____ racing
_____ show or competition
_____ breeding
_____ other (specify: _____)

6. From the list below, rank up to three equestrian activities in which you participate (with 1 being the most popular and 3 being the third most popular).

_____ dressage
_____ driving
_____ endurance riding
_____ eventing
_____ foxhunting
_____ jousting
_____ lessons/instruction
_____ polo
_____ racing
_____ rodeo & related events
_____ showing
_____ trail riding
_____ vaulting
_____ other (specify: _____)

7. Rank the three issues you feel are most critical for the Montgomery County equine community and your activities.

_____ quality of horse activities, facilities and/or services
_____ attracting new individuals to horse industry
_____ current laws and policies related to income taxes
_____ government (county, state and/or federal) land use/environmental regulations
_____ increasing competition from other entertainment sources
_____ lack of profitability and/or increasing costs
_____ liability insurance (costs and/or availability)
_____ loss of open space to development
_____ number of horse activities and/or facilities
_____ property taxes
_____ loss of access to public lands
_____ other (specify: _____)

ECONOMIC IMPACT

8. How many people do you pay or exchange services with to help with your horse operation (excluding seasonal employees, farriers, veterinarians, etc.)?

_____ 1-3
_____ 4-8
_____ more than 9
_____ none

9. How many seasonal workers do you employ *annually*?

10. How many hours of unpaid labor do you estimate are devoted *monthly*to your operation? (Include yourself, family members, unpaid help from friends, etc.)

11. What are your household's average *annual* expenses of such activities as riding attire, tack, showing, trailer upkeep, health and grooming items, breeding, horse training, rider instruction?

12. What is your average *monthly*maintenance expense per horse (including farriery, veterinarian services, feed, bedding)?

13. What is your average *annual* pasture-maintenance expense (including fertilization, seeding, liming, weed control, mowing, fencing)?

14. What percent of your total horse related expenditures are made out-of-county?
Out-of-state?

MANAGEMENT

15. How many horses reside on your property?

16. How many horses currently on your property are temporary (expected to stay less than 6 months)?

17. How many of the horses that reside on your property do you own?

18. How many of the horses that reside on your property do you lease from someone else?

19. On average, how much of a 24-hour period do your horses spend in stalls?
_____ 0-4 hours per day
_____ 4-8 hours per day
_____ 8-12 hours per day
_____ 12-16 hours per day
_____ 16-24 hours per day

20. What type of bedding is used?
_____ wood shavings or sawdust
_____ straw
_____ other (specify: _____)

21. What factors affect your choice of bedding?
_____ availability
_____ cost
_____ ease of use
_____ disposability
_____ health of horses

22. Do you compost soiled bedding? Yes _____ No _____

23. How do you dispose of soiled bedding? (Mark each response that applies.)
_____ pay someone to haul it away
_____ haul it away yourself
_____ spread it on grazed land
_____ spread it on nongrazed land
_____ give away to nurseries, gardeners, etc.
_____ sell or give to mushroom farmers
_____ pile and leave to degrade
_____ other (specify: _____)

24. Do you drag your pastures to break up manure? Yes _____ No _____

If so, how often?

If not, why?

25. If you do not have a pasture harrow, would you consider leasing one short-term to drag your pastures?

Yes _____ No _____

26. Do you mow fields to control weeds? Yes _____ No _____

If so, how often?

If not, why?

27. How often do you deworm your horses?
_____ daily
_____ 6 times/year
_____ between 1 and 5 times/year
_____ only when indicated by fecal egg count
_____ never

28. How is water delivered to your horses' pastures?
_____ running surface water, such as creek or spring
_____ non-running surface, such as pond, lake or reservoir
_____ buckets or water trough
_____ automatic waterer
_____ well water
_____ public water
_____ other (specify: _____)

29. What type of fencing do you use?
_____ wood
_____ barbed wire
_____ high-tensile wire
_____ electric
_____ vinyl
_____ vinyl-clad wood
_____ woven wire (also called "diamond mesh," "v-mesh" or "horse" wire)

30. What is the predominant grass species in your pastures?
_____ bluegrass
_____ tall fescue
_____ orchardgrass
_____ timothy
_____ mixed grasses
_____ mixed grasses/legumes
_____ other (specify: _____)
_____ don't know

31. What type of hay do you typically feed during the winter?
_____ timothy
_____ alfalfa
_____ timothy/alfalfa mix
_____ orchard grass
_____ orchard grass/alfalfa mix
_____ orchard grass/clover mix
_____ clover
_____ fescue
_____ other (specify: _____)
_____ don't know
_____ don't feed hay

32. What type of hay do you typically feed during the summer?
_____ timothy
_____ alfalfa
_____ timothy/alfalfa mix
_____ orchard grass
_____ orchard grass/alfalfa mix
_____ orchard grass/clover mix
_____ clover
_____ fescue
_____ other (specify: _____)
_____ don't know
_____ don't feed hay

33. How many acres of pasture are available for your horses?

34. How many separate pastures?

35. Of the acreage available for pasture, how much is leased?

36. Do you turn your horses out onto wet pastures? Yes _____ No _____

37. Do you have "sacrifice" areas that the horses can be turned out into when they can't be turned out in the pastures?
Yes _____ No _____

38. If so, what is the surface of the sacrifice area?
_____ earth
_____ bluestone
_____ sand
_____ other (specify: _____)

39. Are your pastures grazed continously (not allowed a rest period of at least a week)?
Yes _____ No _____

40. Are horses rotated from pasture to pasture?
Yes _____ No _____

41. Typically, how often are horses rotated to a different pasture?

42. How long is each pasture allowed to rest?

43. What type of fertilizer do you apply to your pastures?
_____ chemical
_____ manure
_____ none

44. How often do you fertilize your pastures?

45. How much fertilizer do you typically use (for example, 500 pounds of 10-10-10 per acre)

46. Do you lime your pastures to correct the pH level? Yes _____ No _____

47. If so, how often?

48. How would you rate the condition of your pastures?
_____ Good—no bare spots and lush grass
_____ Fair—few bare spots and adequate grass cover; some weeds
_____ Poor—many bare spots and inadequate grass cover; numerous weeds

49. What is the main purpose of your pastures?
_____ source of nutrition
_____ source of exercise
_____ both

50. Do you have a nutrient management plan?
Yes _____ No _____

51. Do you have a soil and water conservation plan?
Yes _____ No _____

For information about the Montgomery County Horse Study or to order extra copies of this report, contact the Montgomery Soil Conservation District at (301) 590-2855.

Cover photo by Paul Meyer.
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