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Horse Racing: Its Contribution to Michigan's Economy

Michigan State University

Cooperative Extension Service

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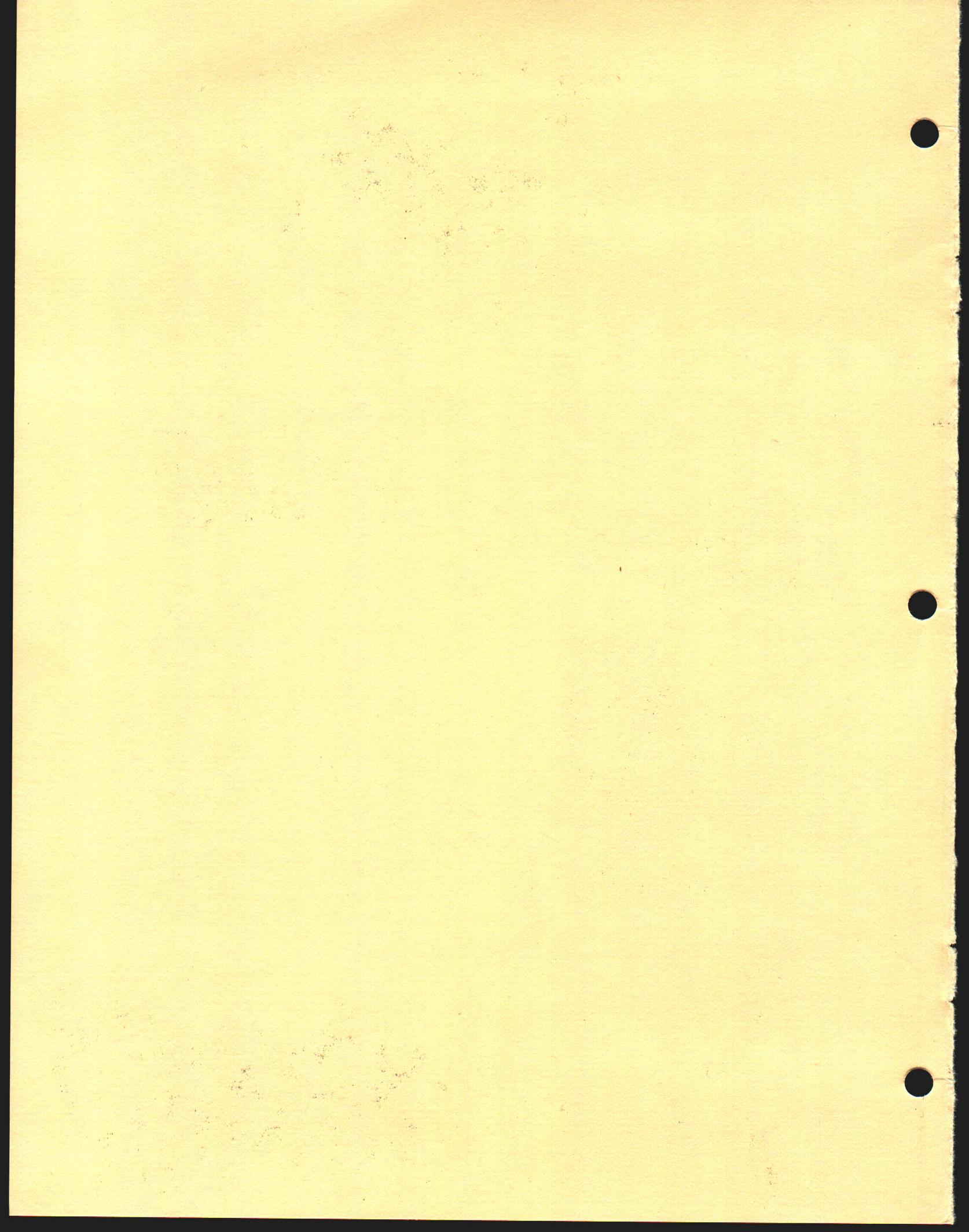
Horse Racing

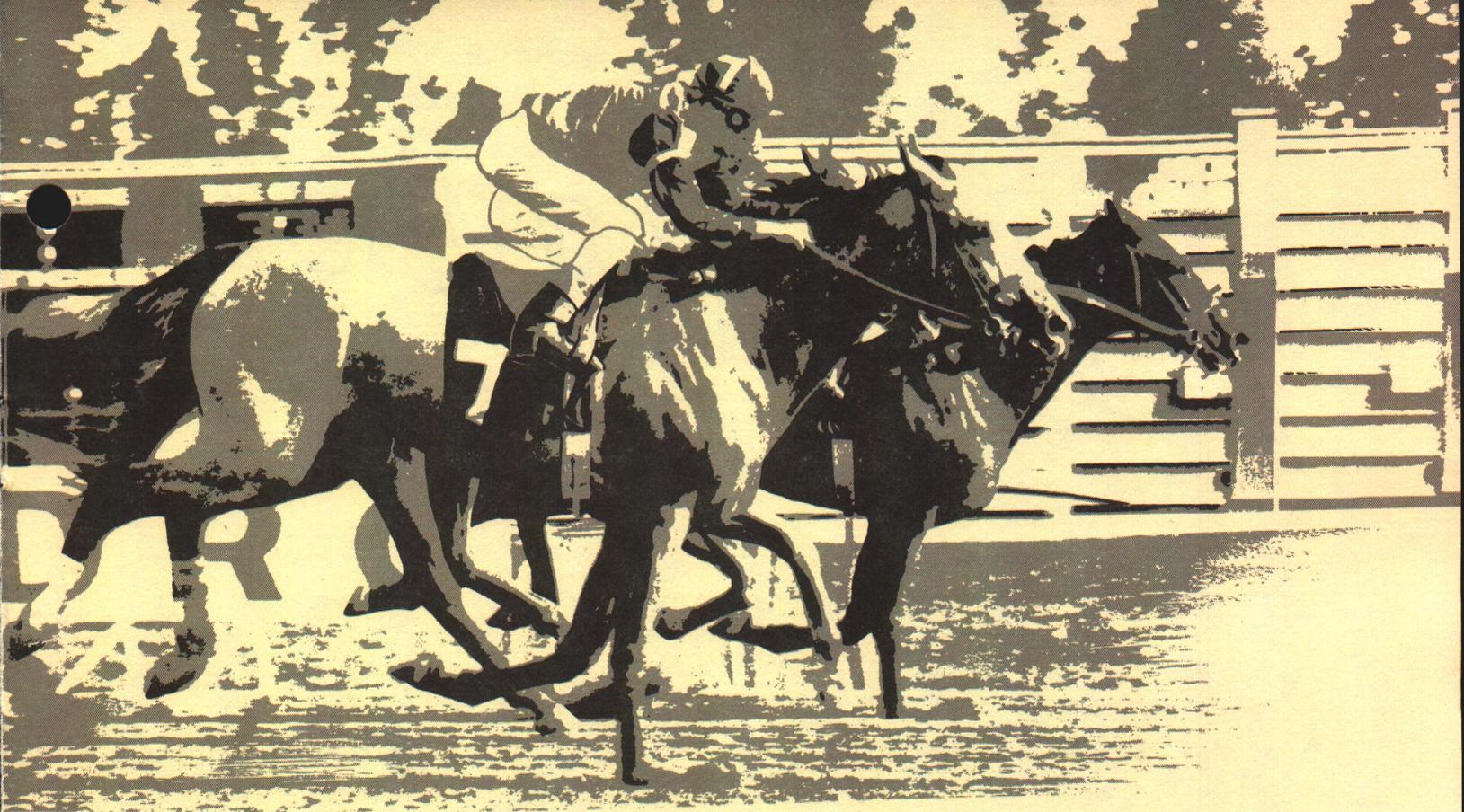
Its Contribution to Michigan's Economy

COOPERATIVE EXTENSION SERVICE
MICHIGAN STATE UNIVERSITY

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Foreword

THE MICHIGAN LEGISLATURE in 1974 and 1975 appropriated \$50,000 to study the contribution of the state's pari-mutuel horse racing industry to the economy of Michigan.

Some measures of this important industry, such as the pari-mutuel tax revenue, have been fairly well known. Other measures, such as investment and employment by horsemen, have been less visible and not well understood. Our goal has been to describe the industry with some economic measurements so that public and private decision makers will have an updated and more comprehensive set of industry benchmarks at their disposal.

This study has had the active support of many of the principal spokesmen for industry participants: The State Department of Agriculture; The State Racing Commission; The Michigan Harness Horsemen's Association; The Michigan Thoroughbred Owners and Breeders Association; The Michigan Standardbred Breeders Association, and individuals too numerous to record here who have contributed their counsel, advice and support.

We have appreciated the opportunity to work on this study.

The authors:

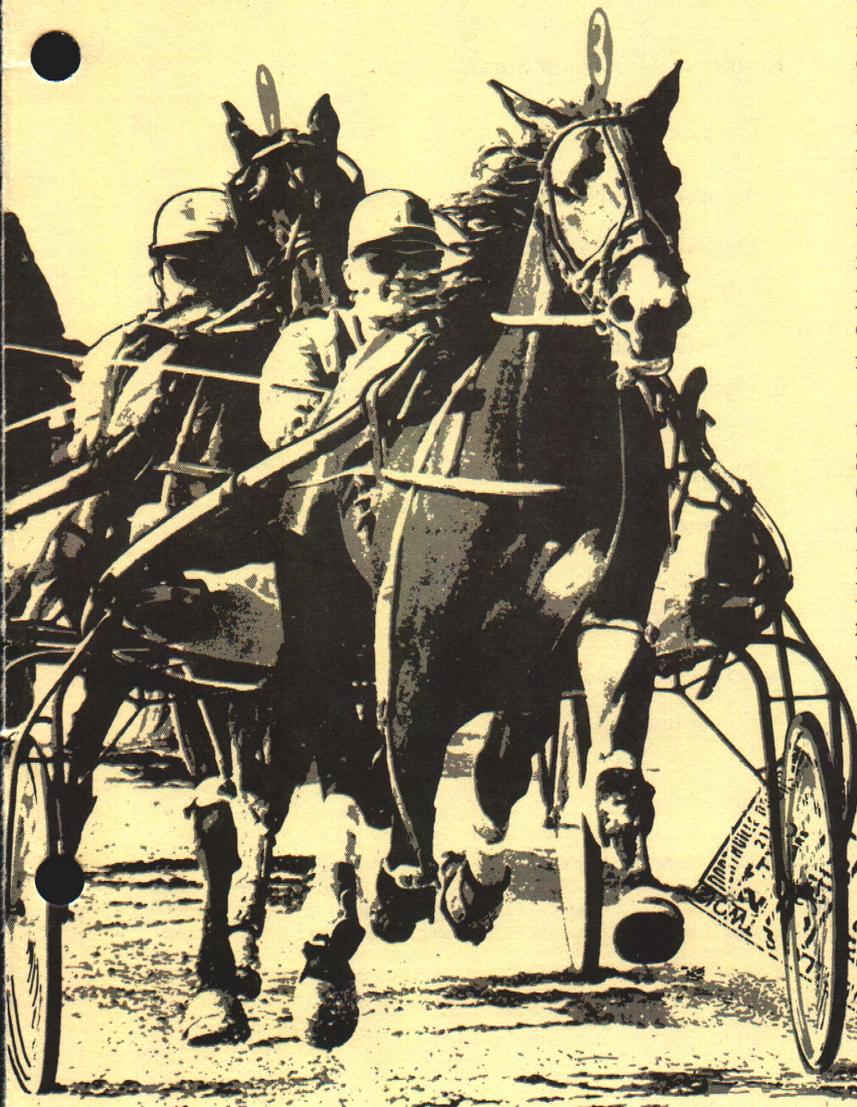
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Horse Racing

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Summary

The Industry Overview

HORSE RACING is the most popular spectator sport in Michigan. Figures show it to be the largest single sports enterprise in the Detroit metropolitan area. The race horse industry in the Detroit area collected receipts of more than \$30 million in 1972, the most recent year for which such data are available. This figure includes track income from all sources: gate, food and program sales and track share of the pari-mutuel handle.¹ Racing of all types brought in \$55 million in gross receipts. Commercial sports of all kinds brought in \$75 million in gross receipts in 1972.

The two most visible measures of how this industry contributes to Michigan are: (1) in 1973 more than 3.6 million people paid their way into Michigan race tracks, and (2) the pari-mutuel revenue contribution to the state exceeded \$26 million with an additional \$4 million in other taxes going to state and local governments.

Actually, horse racing — and the standardbred and thoroughbred horsemen of this study and their horse farm activity — contributed several hundred million dollars each year to the economy of Michigan in recent years. Horsemen own or rent well over 250,000 acres of Michigan land for horse-related purposes. They pay more than 6,000 employees, more than 1,000 of whom are full-time employees of horsemen. The tracks have an additional employment roster of 870 full-time-equivalent workers.

In 1973, horsemen paid over \$11 million annually in wages, and the payroll at the tracks was \$10.5 million. Horsemen have over \$400 million invested in horses, buildings, land and equipment, and in 1973 they spent over \$15 million on new investment. (A sign of an imminent problem in the industry is that in the horsemen subsector of the industry this new investment does not cover depreciation.)

This survey estimated that there are over 12,000 standardbred and thoroughbred horses in Michigan. About 2,400 of these are starters in races. The remainder are race horses in training which do not start, brood mares, stallions, yearlings and other horses. In 1973 Michigan horsemen valued their race horses at close to \$6,000 each and their brood mares at about \$2,500 each.

Gross racing expenses per horseman's family operation averaged over \$27,000 or nearly \$100 million for all horsemen. This was not covered by gross racing income, which averaged well under \$20,000 per horseman. Some major expense items are: hay, feed and bedding — over \$10 million; veterinary services and medicine — nearly \$4 million; land taxes — about \$2 million; and trainer fees, which include more hay feed and bedding as well as a sizable wage bill not reported previously by individual horsemen other than trainers — over \$16 million. The \$11 million bill for wages paid by horsemen already mentioned does not include an estimate for unpaid family labor.

¹ "Handle" is money collected through the state-controlled pari-mutuel windows.

Introduction

Background of the Horse Racing Industry in Michigan

Purpose of the Study

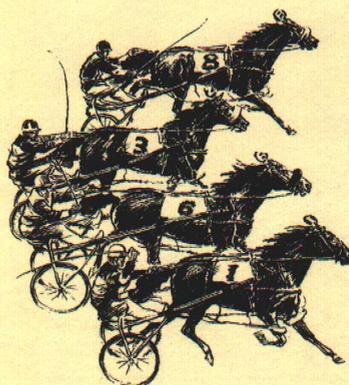
A 1970 SURVEY ESTIMATED some 200,000 horses in Michigan. More than 12,000 of these are standardbred and thoroughbred horses that underpin the pari-mutuel racing industry, which generates over \$30 million in state and local public revenues annually. Substantial allocations of racing monies encourage standardbred and thoroughbred breed development in the state, to support 4-H club programs and to provide purses at county fair harness races. In 1975, handle, the money collected through the state controlled pari-mutuel betting windows at Michigan's four tracks, was nearly \$400 million. The 3,830,260 people who attended horse races in Michigan in 1975 provided the tracks with well over \$50 million in gate receipts and other gross income.

But these figures are generally available to the public through annual reports required by law. What has not been well known at all is the kind of economic activity, i.e., investment, employment, farm land, that is behind this industry and how it contributes to Michigan's economy.

To help explain this latter issue, the state legislature appropriated \$50,000 and asked the Cooperative Extension Service of Michigan State University to survey the race horse industry in the state. This report documents survey findings.

Another report will also be released. It will contain tabulations selected from survey and other data together with some special analyses of important subsectors of the horse racing industry in Michigan.

We hope these results will shed light on some of the more obscure recesses of horse race industry economics and will thereby allow both individual participants and state regulatory agencies to improve their decision-making capability regarding the many policy issues confronting the industry today. Tax policies regarding the pari-mutuel handle, the nature and scope of Michigan-specific awards, the length of the racing season, the opening or closing of additional race tracks, the expansion of pari-mutuel wagering and the selective encouragement by breed or activity of local horsemen are all questions that must be addressed by the appropriate authorities.



Organization of the Racing Industry in Michigan

Seven racing associations sponsor horse races at four tracks in Michigan which offer pari-mutuel betting. The associations and tracks are listed in Table 1.

The State Racing Commission regulates pari-mutuel racing in Michigan. This agency, together with the Fair Division of the Michigan Department of Agriculture, supervises thoroughbred and standardbred racing in Michigan. Typical activities of the Commission are the issuing of licenses and the establishment of racing days. The Fair Division works with breeder awards and purse supplements.

Horsemen in Michigan are generally associated with the activities of owning, breeding or training horses or some combination of these three activities. Some horsemen are also drivers, jockeys, trainers, grooms, or participate in horsemen and racing activities in numerous other ways. Horsemen with standardbred interests in Michigan who meet membership requirements can join the Michigan Harness Horsemen's Association. Another organization with standardbred interests is the Michigan Standardbred Breeders Association.

Michigan horsemen who have thoroughbred interests may affiliate with the Michigan Thoroughbred Breeders and Owners Association. There are, of course, national organizations which include memberships for horsemen with either standardbred or thoroughbred interests. Standardbred and thoroughbred horsemen are represented on the Michigan Horse Council.

Conduct of the Study

In this study we analyzed the horse racing industry in Michigan from two perspectives: (1) the production of horse racing services by standardbred and thoroughbred owners, breeders, and trainers — the horse-

Table 1 – Standardbred and Thoroughbred Racing Associations and Pari-Mutuel Tracks, Michigan, 1973

Thoroughbred Racing

DETROIT RACING ASSN., INC.
(at Detroit Race Course)
28001 Schoolcraft
Livonia, Michigan
Phone 421-7170

HAZEL PARK RACING ASSN., INC.
1650 East Ten Mile Road
Hazel Park, Michigan
Phone 564-5785

Standardbred – Harness Racing

JACKSON-NORTHVILLE
(at Northville Downs)
Northville, Michigan
Phone 349-1000

NORTHVILLE DOWNS
(at Northville Downs Track)
Northville, Michigan
Phone 349-1000

HAZEL PARK HARNESS
RACEWAY, INC.
(at Hazel Park Track)
Hazel Park, Michigan
Phone 566-1595

WOLVERINE HARNESS RACEWAY, INC.
(at Detroit Race Course)
28001 Schoolcraft
Livonia, Michigan
Phone 421-7170

JACKSON TROTTING ASSN., INC.
Jackson Fairgrounds
200 W. Ganson Street
Jackson, Michigan

Source: Michigan Racing Commission

men of this study, and (2) the pari-mutuel track – a special marketplace for those services.

We will present the results in terms of how the industry directly affects Michigan's economy by its use of land and the employment of labor and capital resources. The multiplier effect of these resources on the economy is not a part of this study.

We have examined data gathered in mail and interview surveys conducted in 1974 among horsemen – owners, breeders and trainers – to find out the economic position of these producers of race horses and horse racing services. Second, we have examined the size and trends in the consumer market for horse racing and have studied recent financial data to find out the economic position of the pari-mutuel tracks as they serve the racing customer.

The analysis of the production of horse racing

services is an attempt to understand the numbers of people, the jobs they perform and how they are organized in combination with land and capital to produce horse racing services in Michigan. In the remainder of this report data and analyses will be presented as collected from: (1) the mail survey in which some 4,000 questionnaires were mailed to horsemen in Michigan and 840 questionnaires returned with 732 posted for analysis and, (2) an interview questionnaire in which 85 horsemen were personally interviewed in detail. Additionally, using data already available with respect to activities at tracks, some measure of the contribution to the state's economy from that source will be presented, showing how the race tracks provide jobs for hundreds of people, pay large amounts of money in state and local taxes and spend millions of dollars annually so that their establishments can serve the racing customer.

Recent Trends

In Thoroughbred and Harness Racing

A MAJOR MARKETPLACE of the horse racing industry is the pari-mutuel track. The customer is the racing fan who spends money for admission, bets, concessions and parking.

An Overview of the Tracks

In recent years, horse racing has been the largest single sports enterprise in the Detroit area.

In the last three years for which data are available, total attendance at Michigan pari-mutuel tracks has shown a leveling trend after a peak in 1971. Attendance at thoroughbred meets has shown a steep decline since 1970, and there has been a sharp increase in the popularity of harness racing since 1969. (See Chart 1.)

In 1973, harness tracks drew more fans than did thoroughbred tracks for the first time. Average attendance by type of racing suggests a strong trend toward convergence of the two averages. In 1968, thoroughbred tracks drew almost two-and-one-half times as many fans to each race as did harness tracks. By 1974, thoroughbreds were drawing only 70 percent more fans to each race than were harness tracks.

Betting at pari-mutuel tracks has shown a long upward dollar increase over the years. However, in terms of the purchasing power of the dollar over time, the average bet per patron has remained relatively constant.

Available data suggest that although pari-mutuel racing appears growing and healthy, the bulk of the growth is in harness racing while thoroughbred racing appears stagnant.

Pari-mutuel racing was the fastest growing commercial sports activity in Michigan during the five-year period from 1967 to 1972 when receipts of the racing industry more than doubled. During the same period the total receipts from other commercial sports increased from \$12 million to \$16 million dollars, an increase of 33 percent.

The pari-mutuel tracks in the Detroit area collected more than \$30 million in 1972, the most recent year for which such data are available, including gate, food and program sales and the track share of the pari-mutuel handle. Commercial sports of all kinds brought in \$75 million gross receipts in 1972; racing of all types brought in \$55 million gross receipts.

In 1974, Michigan race tracks paid \$10.5 million in wages, including wages paid for concession workers. The tracks paid \$13.6 million for goods and services purchased from other businesses and paid \$31 million in pari-mutuel and other taxes. Most of these taxes were paid to state and local governments.

The bet per patron at pari-mutuel tracks has remained about the same during the past 20 years, considering inflation. Like the trend in attendance, the amount of the bet per patron is equalizing for both types of racing.

In 1974, thoroughbred tracks suffered a 50 percent drop in net income from 1973. As a result, payments to horsemen in the form of stakes, purses and trophies fell 31 percent. In contrast, net income at Michigan harness tracks increased 50 percent, and the size of purses paid increased 14 percent. These changes cannot be attributed to changes in the number of racing days permitted, since these remained virtually unchanged from 1973 to 1974.

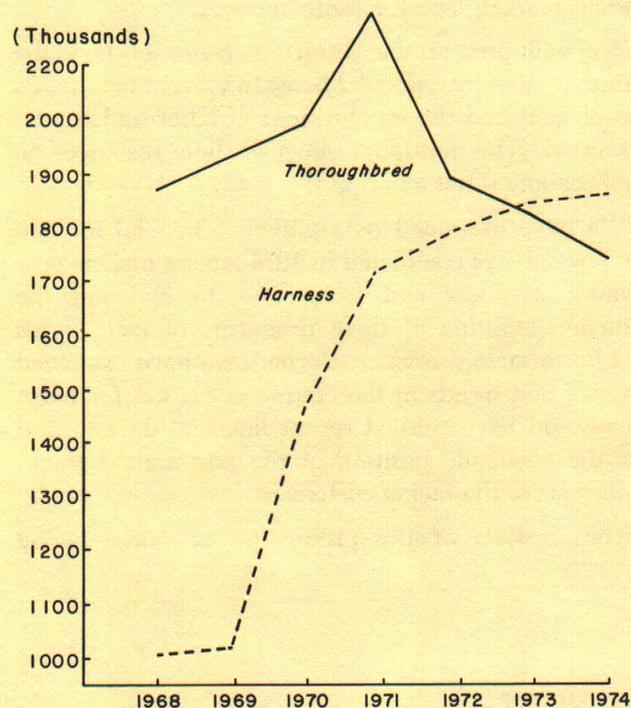


Chart 1 — Total Attendance By Type Of Racing At Pari-Mutuel Tracks, Michigan, 1968-1974.

Table 2 — Financial Summary of Thoroughbred Tracks, Michigan, 1973 and 1974.

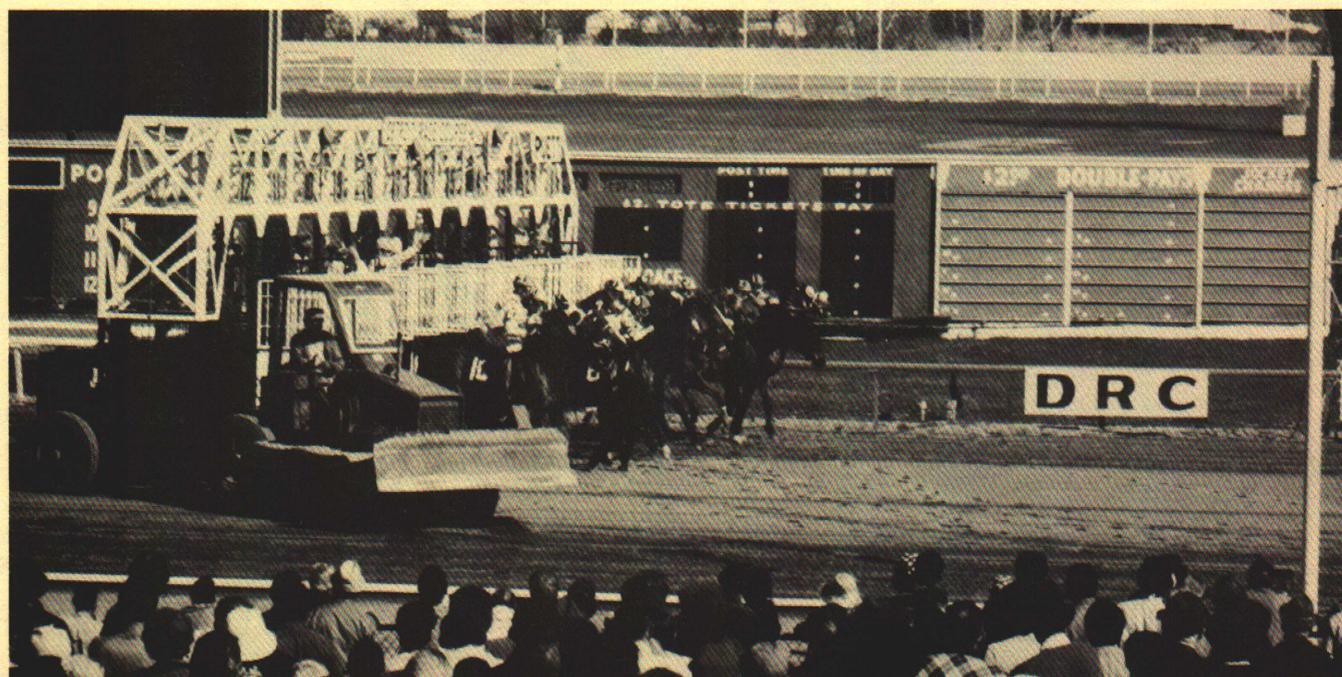
	1973	1974	Difference
Payment to:			
Stakes, Purses, Trophies . . .	\$ 7,460,406	\$ 5,106,270	(\$2,354,136)
Wages	5,167,946	5,431,656	263,710
Taxes			
Pari-mutuel	16,662,608	16,583,851	(78,757)
Other	2,085,475	2,073,528	(11,947)
Administrative expense	4,909,113	5,081,768	172,655
Maintenance	406,816	366,492	(40,324)
Net income	1,092,509	663,405	(429,104)

Source: Financial Statements of Hazel Park Racing Association and Detroit Racing Association for 1973 and 1974.

Table 3 — Financial Summary of Standardbred Tracks, Michigan, 1973 and 1974.

	1973	1974	Difference
Payment to:			
Stakes, Purses, Trophies . . .	\$ 8,347,618	\$ 9,578,860	\$ 1,231,242
Wages	4,440,038	4,579,392	139,354
Taxes			
Pari-mutuel	9,591,551	10,648,751	1,057,200
Other	1,846,935	2,133,996	287,061
Administrative expense	3,746,168	3,862,714	116,546
Maintenance	461,683	432,090	(29,593)
Net income	1,312,008	1,978,575	666,567

Source: Financial Statements of Northville Downs, Wolverine Harness Raceway, Hazel Park Harness Raceway and Jackson Trotting Assoc. (includes Jackson and Jackson at Northville) for 1973 and 1974.



Results of Horsemen Survey



Overview of the Horsemen

IN AN OVERVIEW, here are results of the horsemen's surveys: in 1973, standardbred owners each had tied up an average \$101,100 in total investment in their race horse enterprise. Thoroughbred owners' investments averaged \$194,600.

Horsemen averaged about \$18,000 in gross racing income but over \$27,000 in gross racing expense. Mail survey data show both income and expenses for the average thoroughbred horseman to be considerably higher than for standardbred owners. The net income for thoroughbred owners was more extreme on the negative side.

Thoroughbred racing will have to continue to command a premium in the market place, if it is to remain healthy. Future analysis should shed more light on this issue of whether the standardbred/thoroughbred distinction is fading.

Tables 4, 5 and 6 summarize the mail survey which gave the first indication of the current scope of the horsemen's sub-sector, the estimates of owners, breeders and trainers in Michigan and the degree of integration among these activities.

An Average Horseman

In a "first look" at the industry, it is interesting to construct an image of an average horseman. Detailed analysis will show that large numbers of small operators and a few very large horse businesses reduce the meaning of average in this case.

If we were to select an average horseman and analyze his operation in some detail, the results might look something like this: our horseman would probably be a standardbred owner-breeder a little over 50 years of age, although if he were involved with thoroughbreds he would probably be a couple of years older. He would spend about 42 percent of his management time working in his horse enterprise, 7 percent more time than his thoroughbred counterpart. He would have spent more than 14 years in horse

racing, three more than his thoroughbred counterpart. Each year our average horseman would start three to four horses. Of these starters 15 percent would be two-year-olds, 25 percent would be three-year-olds and 60 percent would be four-year-olds or older. For every three horses he starts, he would have one nonstarter. Three out of four nonstarters never reach the track. This view of nonstarters helps explain the burden of training and other costs to be recovered by starters from the owner's point of view.

Our horseman would have a total investment with regard to his total horse enterprise of about \$125,000. His variable expenses reach \$18,308 and include, as examples, the following: \$4,676 for trainers' fees; \$1,369 for wages; \$3,112 for hay, feed and bedding; \$1,105 for veterinarian fees and medicine; \$744 for commissions to trainers, jockeys, etc.; \$1,110 for tack and other racing expenses.

Our horseman earns \$16,586 from purse money, net gains on the sale of horses and breeder awards because 2.7 or about 90 percent of his starters finish in the money at one time or another.

Table 4 — Reconciliation of Mail Questionnaires, Race Horse Industry Study, Michigan, April, 1974.

Mailed to standardbred list	3,009
Returned: No such address	1
Deceased	1
No forwarding address	36
Assumed delivered to horsemen	2,971
Mailed to thoroughbred list	971
Handed to trainers at thoroughbred sale, 28 April, 1974, and at HBPA meeting	69
Returned: No such address	2
Deceased	1
No forwarding address	39
Assumed delivered to horsemen	1,007
TOTAL DELIVERED	3,978
Returns accepted (some not accepted for all entries)	840 (21.12%)

Table 5 — Activities of Respondents to Mail Questionnaire by Number in Sample, Percent of Total Sample, Percent with Standardbred Interests, Percent with Thoroughbred Interests and Estimated Totals, Michigan, April, 1974.

Activity	Number in sample	Percent of total sample	Standardbred interests in sample		Thoroughbred interests in sample		Estimated distribution of state race horsemen using completed questionnaires as sample		
			No.	Percent of total sample	No.	Percent of total sample	Standard- bred	Thorough- bred	Total
Owner only	217	25.8	148	17.6	69	8.2	701	327	1,028
Breeder only	14	1.67	11	1.3	3	.4	52	14	66
Owner/breeder	105	12.5	87	10.4	18	2.1	412	85	497
Owner/breeder/trainer	115	13.7	98	11.7	17	2.0	465	81	546
Owner/trainer	194	23.1	130	15.5	64	7.6	616	304	920
Breeder/trainer	2	.2	1	.1	1	.1	5	4	9
Trainer only	14	1.67	11	1.3	3	.4	52	14	66
Other*	12	1.4	12	1.4	0	0	57	0	57
Owner/breeder/trainer/other	26	3.1	24	2.85	2	.25	114	9	123
Owner/breeder/other	20	2.4	20	2.4	0	0	95	0	95
Owner/trainer/other	6	.7	6	.7	0	0	28	0	28
Owner/other	2	.24	1	.12	1	.12	5	4	9
Breeder/trainer/other	0	0	0	0	0	0	0	0	0
Breeder/other	3	.36	3	.4	0	0	14	0	14
Trainer/other	2	.24	1	.12	1	.12	5	4	9
None or blank (left industry during the year)	108	12.85	74	8.76	34	4.02	350	161	511
	840†	100.0	627	74.69	213	25.31	2,971	1,007	3,978

*Other was posted as "Driver," "Official," "Veterinarian," "Farrier," "Starter," etc.

†For a first estimate of horsemen, the number who left the industry should be subtracted from 840. Adjusting the remainder for double counting in families and building up to the mailing roster yields an estimate of 3,500 horsemen families, with approximately 2,650 in standardbreds and 850 thoroughbreds. This also takes into consideration new entries into the industry.

Table 6 — Groupings of Respondents by Interest in Activities of Owner, Breeder, Trainer and Other with Estimated Totals, Michigan, April 1974.

Central category	Number in sample	Standardbred interest in sample	Thoroughbred interest in sample	Estimated distribution of state race horsemen*		
				Standardbred	Thoroughbred	Total
All activities						
Including "Owner"	685	514	171	2,436	810	3,245
Including "Breeder"	285	244	41	1,157	193	1,350
Including "Trainer"	359	271	88	1,285	416	1,701
Other†	71	67	4	318	17	335
Gross exit from horsemen's list during year	108	74	34	350	161	511
Total from Table 5	840	627	213	2,971	1,007	3,978

*Using completed questionnaires as sample.

†Other was posted as "Driver," "Official," "Veterinarian," "Farrier," "Starter," etc.

It is all too clear, however, that Mr. Average Horseman is losing money; fortunately, 75 percent of the horsemen say they have another source of income: 25 percent of standardbred horsemen are businessmen, 10 percent are workers, 12 percent are farmers, and 22 percent are professional people like doctors, teachers, scientists, accountants, and attorneys. Six percent are retired, however, and one can only hope that they belong to the 25 percent of horsemen who are in the black.

Details of the Horseman Subsector

The Goals

This horseman subsector study component emphasizes the questions of resource use. The most clearly marked way in which the industry affects the Michigan economy lies in how much state land, labor and capital resources it withdraws from alternative uses. This component analyzes state totals of horseman-used agricultural land, full and part-time labor and its wage bill, the stock inventory of horses and other investment goods both in physical units and monetary value, and payments by horsemen to other horsemen and to other state economic units. Where possible, this will be broken down by breed, activity (to be defined below), and scale.

These results will be highlighted by statements of the typical horseman's net income situation and growth performance.

Methodology

With minor exceptions, the quantitative results presented below are based on two surveys carried out by staff of the Michigan Cooperative Extension Service in 1973 and 1974.

The first survey by mail questionnaire envisaged a complete mailing to all known standardbred and thoroughbred horsemen; it was not intended, however, to draw out a precise census, but only a sample, as previous experience with mail surveys shows 100 percent returns cannot be expected. (A 10 percent return is usually considered acceptable for numbers such as contacted in this study.) A list of Michigan horsemen, constructed with the help of owners' and breeders' associations for both breeds, was considered by all parties to be complete. A special effort to include smallscale operators was thought to be successful. This list indicated that there were around 4,000 horsemen in Michigan; however, since the population unit for this study was the family, it was further esti-

ated that about 3,500 individual families owned, bred or trained race horses. To assure adequate coverage, however, all known horsemen were sent questionnaires.

Specifically, 3,980 questionnaires were mailed, with an additional 69 hand-delivered in various horseman meetings. See Table 5. Of the resulting total of 4,049 questionnaires delivered, 69 were returned by the Postal Service due to address problems, including addresses of deceased. Of the resulting 3,978 questionnaires to which answers could have been expected, 840 returns were received with 596 of these selected as acceptable for most of the entries. This gave the survey a response rate of between 15 and 21 percent, depending on the extent of the respondents' involvement in the horse business.

The second survey was carried out as a schedule of individual personal interviews. Attempts to determine a few population parameters were set aside in favor of drawing a small sample in order to obtain detailed information on expenses and returns. The horsemen list was updated and double counting of names eliminated; this name list became the sampling frame and was considered complete at the time the sample was drawn. A systematic nonrandom sample was drawn from this frame by selecting every 35th name on the sampling frame. Although this was a nonrandom selection, it was not expected that much bias was introduced since names on the sampling frame were organized by postal ZIP code and then were arranged in alphabetical order. Another source of bias was the fact that not all selected names were, in fact, interviewed. For thoroughbreds, only the names at the top of the sample were finally interviewed; a final sample size of 84 resulted from this decision.

The complex nature of the race horse business made it difficult to avoid some ambiguous questions. The distinctions between owner and breeder information were not as clear as expected, probably because so few owners participate as owners only. Survey techniques did not permit collection of detail on training activities.

The surveys reinforced each other. The particular weakness of one survey instrument is the strength of the other. Although interview survey information on horse populations seemed suspect, income and expense information was very acceptable both in terms of its inherent clarity of interpretation and the way it matched up with other estimates. In this study, then, mail survey results and other secondary results (Equine Surveys, etc.) are used to estimate horse populations, and the interview survey results are used

to estimate cost and return, and investment variables.

After the editing was completed, the resulting data were analyzed by examination of frequency distributions, cross-tabulations, breakdowns on the basis of breed, activity, and scale per variable, and analysis of variance tests.

Frequency distributions were used in several ways: (1) as instruments in data editing, (2) to get a "feel" for acceptable response levels, and (3) to examine skewness levels and directions. Frequency distributions of variables taken from both surveys revealed that the conventional assumption of a normal distribution does not hold for horsemen: there is a great preponderance of small operators.

The breakdown scheme was based on levels of breed, activity and scale. Each variable measured by the interview survey was broken down by breed (standardbred, thoroughbred) and activity (owner, breeder, owner-breeder). The greater degrees of freedom of the mail survey allowed a further breakdown into the following categories:

Breed: standardbred, thoroughbred.

Activity: owner, breeder, trainer, owner-breeder, owner-trainer, breeder-trainer, owner-breeder-trainer.²

Scale (value of horses owned): less than \$5,000; \$5,000 to \$20,000; \$20,000 to \$50,000; more than \$50,000 (See Table 21.)

Thus, a given variable may be broken down into 56 different cells, each of which contains the expected value of that variable given the cell's identification.

Effect of Scale and of Vertical Integration on Income

We expected (but did not conclusively prove) that the effect of scale would be significant for owners and breeders of both breeds, with the larger operations (more than five starters) being the more profitable ones. It seems more probable that there are several possible levels of organizing a race horse business. For example, one method may suit the horsemen who have two to six starters; another may suit the horsemen with five to eight starters, and so on. Within each method there could be a break-even level of activity on the average.

The effect of vertical integration (some degree of owning, breeding, training and other allied activities in any combination) is even more difficult to judge.

The Results

The economic interpretation of the estimates is important and although dependent on accurate data, actually goes beyond precision and bias. The use by horsemen of land, labor and capital resources certainly has an impact on the economy. Value comparisons between resource use by horse racing and by alternative users are made difficult by the fact that horsemen's income is not market-determined. Since purse size is the result of administered action combined with market decisions (handle is mostly market-determined but purse size itself is a political decision), rates of return to various resources are, in a sense, artificially set. Increased resource productivity can be obtained merely by an administered increase in purse size except insofar as the handle itself decreases due to response by wagerers to their decreased winnings.

The following estimates describe the race horse industry use of resources and are not to be confused with judgments concerning the desirability of such use as compared to other alternatives. To make such a judgment, information would be needed about the other alternatives.

Land Use

Michigan horsemen utilize land for such activities as exercising their race horses, building tracks or barns, or raising grain or pasture to feed their stock. From interview and mail survey results, the following variables have been estimated: (1) acres owned and rented by horsemen and used for horse-related purposes; and (2) total acres owned and rented by horsemen for all activities.³ These estimates clearly do not tell the full story of Michigan acreage use for horse-related purposes — what is not included is that acreage owned by nonhorsemen (and not rented to horsemen) used to grow grain, hay or straw purchased by horsemen.

Estimates of taxes on this land at the state average for cropland in southern Michigan would yield nearly \$2 million at an \$8 per acre rate. Survey figures ranged around this figure but with wide extremes.

² Owners are defined as those horsemen who own rights in at least one race horse and who have no breeding or training interests whatsoever. Breeders are defined as those horsemen who own brood mares and who have absolutely no racing or training interests whatsoever. Trainers, similarly, are those horsemen who train horses belonging to others and who have no racing or breeding interests of their own. The remaining activity variables are simply combinations of these three categories: An owner-trainer is a horseman who owns race horses and trains them (and/or those of someone else) but who has no breeding interest.

³ Much other data such as "acres owned by horsemen and used for horse related purposes" have been posted and will be available in an associated annex to this study. The information will be available from the authors for those interested in more detail.

Table 7 — Acres Owned and Rented and Used by Horsemen for Horse-related Activity, Michigan, 1973.

	Average estimate	Percent owned and rented	Estimate of percent owned
Standardbred	204,832	87	75
Thoroughbred	30,607	13	25
TOTAL	235,835*	100	100

*The range of estimates was between 290,000 and 175,000 acres for both breeds together.

Table 8 — Percent of Acreage Owned and Rented and Used by Horsemen for Horse-related Activity, by Main Activity of Horsemen, Michigan, 1973.

Activity	Percent owned and rented
Owner	0
Breeder	5
Trainer	0
Owner-breeder	72
Owner-trainer	11
Breeder-trainer	0
Owner-breeder-trainer	12
TOTAL	100

Table 9 — Percent of Acreage Owned and Rented and Used by Horsemen for Horse-related Activity, by Scale of Horsemen (Value of Horses Owned), Michigan, 1973.

Scale*	Percentage
Less than \$5,000	15
\$5,000 to \$20,000	25
\$20,000 to \$50,000	11
More than \$50,000	49
TOTAL	100

*Scale of investment in horses. See Table 21.

Table 10 — Acreage Owned and Rented and Used by Horsemen for all Enterprises, Including Enterprises Other Than Race Horses, Michigan, 1973.

Breed	Average estimate*	Percent
Standardbred	261,950	81
Thoroughbred	61,450	19
TOTAL	323,400	100

*Estimates ranged between 250,000 and 400,000 acres for both breeds together.

Employment and Wages

The following estimates regarding employment and wages in the horseman subsector were derived from both the interview and mail surveys. Estimates are given for the number of employees paid, the number of full-time employees maintained, the average number of hours per week per employee that all paid employees work, the number of hours per week of uncompensated labor performed by family members (including the operator himself) and the wage bill of horsemen. Because the combined survey data showed the employment estimates for all horsemen as well as the ratio of horsemen doing training exclusive of breeding, it is possible to obtain an estimate of the total wage bill in the horseman subsector. These estimates reflect exclusively what owners, breeders and trainers utilize directly of the state's labor force; they

Table 11 — Number of Employees Paid by Horsemen, Michigan, 1973.

Breed	Average estimate*	Percent
Standardbred	4,350	69
Thoroughbred	1,950	31
TOTAL	6,300	100

*Estimates ranged between 5,000 and 7,500 for both breeds together.

Table 12 — Percent of Employees Paid According to Activity, Michigan, 1973.

Activity	Percent
Owner	16
Breeder	3
Trainer	1
Owner-breeder	48
Owner-trainer	14
Breeder-trainer	0
Owner-breeder-trainer	18

Table 13 — Percent of Employees Paid According to the Scale of the Employing Horseman's Operation, Michigan, 1973.

Scale*	Percent
Less than \$5,000	13
\$5,000 to \$20,000	38
\$20,000 to \$50,000	14
More than \$50,000	35
TOTAL	100

*Scale of investment in horses. See Table 21.

do not include any consideration of multiplier effects on the state's economy.

Tables 12 and 16 show that breeder activities account for 69 percent of the numbers employed but 56 percent of the wage bill. This suggests that much of the part-time help must be hired by horsemen whose activities include breeding.

Table 13 suggests that as horsemen whose scale of operation is in the \$5,000 to \$20,000 range employ the most individuals, these must also be the places employing a high portion of the part-time help used by horsemen.

Number of full-time employees paid by horsemen — The following estimates were derived from the interview survey. The only breakdown given is based on

Table 14 — Estimated Number and Percent of Full-time Employees Paid by Horsemen, Michigan, 1973.

<i>Breed</i>	<i>Average estimate*</i>	<i>Percent</i>
Standardbred	811	76
Thoroughbred	256	24
TOTAL	1,067	100

*Estimates ranged between 530 and 1600 for both breeds together.

Table 15 — Estimated Number of Hours Per Week Worked Per Employee by Employees Paid by Horsemen, Michigan, 1973.

<i>Breed</i>	<i>Hours per week</i>
Standardbred	33
Thoroughbred	45.8
TOTAL AVERAGE	36.7

Table 17 — Estimate of All Labor Used by Horsemen by Breed, Converted to Full-time Man-equivalents, Michigan, 1973.

	<i>Labor use by breeds</i>		
	<i>Standard-bred</i>	<i>Thorough-bred</i>	<i>Total both breeds</i>
Number Employees paid per horseman	1.63	2.23	1.8
Average work week (hours) for paid employees	33.0	45.8	36.7
Average hours of labor used per horseman per week	53.8	102.1	66.1
Family labor per week (hours) per horseman	41.9	41.9	41.9
Total labor per horseman per week (hours)	95.7	144.0	108.0
Total man-hours of labor used by all horsemen annually (thousand hours)	12,560	6,300	18,900
Man equivalent (40-hour week, 50 weeks per year)	6,280	3,150	9,450

the breed of horse in which the horseman has primary interest.

Unpaid hours worked by all family members (including the operator) are estimated to average 36.7 hours per week.

Wages paid by breeders and other horsemen to employees — The estimates in Table 16 are derived from interview survey results, as no questions regarding this variable appeared in the mail survey.

Summary — To combine the preceding estimates in another way, a summary is offered in Table 17. Taking the number of paid employees times their average work week, plus the average work week of uncompensated family labor, average weekly labor (as measured in hours) is estimated. From this, a "man-equivalent" estimate is computed: it is the number of laborers working a 40-hour week and a 50-week year that would be needed to supply the labor demanded by horsemen. The total "man-equivalents" needed by horsemen are probably higher than the number of employees paid since family labor and paid overtime are taken into account. The calculations were performed by breed. Column and row totals may not total the same due to rounding. It should also be recognized that only one out of six of the paid employees works full-time.

Table 16 — Estimation of Wages by Breeders and by Other Horsemen to Employees, Michigan 1973.

<i>Activity</i>	<i>Average</i>	<i>Percent</i>
Horsemen doing breeding ..	\$ 6,123,804	56
Horsemen doing training and other activities exclusive of breeding	\$ 4,811,560	44
Total wage bill of horsemen	\$10,935,364	100

Investment and Growth

The following estimates are concerned with total investment levels and their changes due to the interplay of depreciation and new investment. The following variables are estimated: (1) total investment in horses, buildings, land and equipment; (2) total investment in horses; (3) total investment in buildings, land and equipment; (4) depreciation; (5) new investment; and (6) net investment. Growth rates have been derived from net and total investment estimates. All estimates except the percentage breakdown estimates for total investment in horses are derived from interview survey results.

Total investment in horses, buildings, land and equipment — These estimates are derived exclusively from interview survey results. They represent the total estimated investment levels of the individual components.

Table 18 — Total Investment in Horses, Buildings, Land and Equipment by Horsemen, by Breed, Michigan, 1973.

Breed	Average estimate*	Percent
Standardbred	\$266,930,885	61.5
Thoroughbred	167,350,512	38.5
TOTAL	\$434,281,397	100

*Estimates ranged between \$406,000,000 and \$470,000,000 for both breeds together.

Total investment in horses — The following estimates were derived from interview survey and mail survey results with the former used for overall averages and the latter for breakdowns by breed, scale and activity. Horses included are race horses whether or not they start, brood mares, stallions, foals, yearlings, horses of racing age not in the stable, and other horses.

Table 19 — Horsemen's Total Investment in Horses by Breed, Michigan, 1973.

Breed	Average estimate*	Percent
Standardbred	\$29,401,485	63
Thoroughbred	\$17,524,412	37
TOTAL	\$46,925,897	100

*Estimates ranged between \$35,000,000 and \$55,000,000 for both breeds together.

Table 20 — Percent of Total Investment in Horses, by Horsemen's Activity, Michigan, 1973.

Activity	Percent
Owner	11
Breeder	1
Trainer	0
Owner-breeder	63
Owner-trainer	5
Breeder-trainer	0
Owner-breeder-trainer	20

Table 21 — Percent of Total Investment in Horses According to Horsemen's Scale of Operation, Michigan, 1973.

Scale	Percent
Less than \$5,000	2
\$5,000 to \$20,000	9
\$20,000 to \$50,000	11
Over \$50,000	78

Total investment in buildings, land and equipment — The following estimates are derived from interview survey results since no corresponding question was included in the mail survey.

Table 22 — Horsemen's Total Investment in Buildings, Land and Equipment, Michigan, 1973.

Breed	Average estimate*	Percent
Standardbred	\$237,529,400	61
Thoroughbred	\$147,826,100	39
TOTAL	\$387,355,500	100

*Estimates ranged between \$300,000,000 and \$470,000,000 for both breeds together.

Depreciation — The estimation of depreciation was difficult. No question relating to depreciation was asked in the mail survey, so all estimates were derived from the interview survey. However, the questions in that survey did not allow for the possibility of different depreciation methods being used by various respondents; some only depreciated horses while others depreciated all investment goods except horses, and all, of course, used different schedules. For this reason, depreciation was recalculated for each response, using a standard straight-line method. Horses

were depreciated over eight years and building and equipment over 25 years. The following estimates are based on this standardized recalculation.

Table 23 — Estimated Depreciation of Horses, Buildings and Equipment for Horsemen, By Breed, Michigan, 1973.

Breed	Average estimate	Percent
Standardbred	\$ 9,997,682	54
Thoroughbred	8,601,415	46
TOTAL	\$18,599,097	100

New investment — The following estimates are based on interview survey results. The mail survey did contain a question related to this variable but nonresponses made it difficult to try and correlate with the interview survey.

Table 24 — New Investment by Horsemen, by Breed, Michigan, 1973.*

Breed	New investment† (average estimate)	Percent
Standardbred	\$11,228,400	72
Thoroughbred	4,368,875	28
TOTAL	\$15,597,275	100

†Estimates ranged between \$21,209,986 and \$9,737,440 for both breeds together.

*The sample drawn for interviewing horsemen with thoroughbreds was biased toward those with more horses than the average for all thoroughbred horsemen. Nevertheless, from examining other data it is clear that all thoroughbred horsemen invest more, on the average, than do standardbred horsemen in all components of the business — land, buildings, equipment and horses.

Table 25 — Net Investment by Horsemen by Breed, Michigan, 1973.

Breed	(average estimate) Investment or disinvestment*
Standardbred	\$1,230,700
Thoroughbred	-\$4,233,000
TOTAL	-\$3,002,300

*Estimates ranged between \$3,000,000 and a disinvestment of \$9,000,000 for both breeds together.

Net investment — It is clear that since both depreciation and new investment estimates were derived from interview survey results, the same must be true for net investment which is defined here as the difference between the two. Problems encountered in estimating either depreciation or new investment are, of course, carried through to net investment as well.

Summary — This short summary of investment and growth estimates is offered to make the above estimates more understandable. Although the totals by breed do not quite equal the estimated general average (computed in a different manner), the general pattern is clear: the standardbred component of the horseman subsector seems to be holding its own and is possibly growing at a slow rate, while the thoroughbred component is probably disinvesting. Negative growth in the thoroughbred component seems to be more than adequate to offset the positive standardbred growth to give a negative rate of growth for all horsemen as an aggregate. The role of the computed standard errors should be noted here again: although the average expected value of net investment for the horseman subsector as a whole is negative, zero is included within the high-low range of estimates which are quite wide. It is difficult, therefore, to make any growth statement about either breed based on this type of analysis using these figures alone. Industry problems are suggested, however.

Table 26 — Summary of Estimates of Investment and Growth in Horsemen's Subsector, Michigan, 1973.

	Standardbred	Thoroughbred	Total
Total investment	\$266,930,885	\$167,350,512	\$434,281,397
Depreciation	9,997,682	8,601,415	18,599,097
New investment	11,228,000	4,369,000	15,597,000
Net investment	1,230,318	-4,232,415	-3,002,097
Growth rate, percent annually	.46	-2.5	-.69

Horse Population

The following variables are estimated: (1) number of race horses in training; (2) number of starters; (3) number of brood mares; (4) number of stallions; and (5) total number of horses. Both average values per respondent and state totals are given.

Number of race horses in training – The following estimates are derived entirely from the mail survey. Questions regarding this variable were also included in the interview survey. As is the case with all mail survey results, no upper and lower limits will be given.

Table 27 – Race Horses in Training, Estimated, Michigan, 1973.

Standardbred	2,914
Thoroughbred	1,190
Total	4,104

Table 28 – Race Horses in Training by Activity, Michigan, 1973.

Activity	Percent
Owner	21
Breeder	0
Trainer	1
Owner-breeder	29
Owner-trainer	21
Breeder-trainer	0
Owner-breeder-trainer	28
TOTAL	100

Table 29 – Race Horses in Training by Scale of Operations, Michigan, 1973.

Scale*	Percent
Less than \$5,000	14
\$5,000 to \$20,000	32
\$20,000 to \$50,000	22
Over \$50,000	32
TOTAL	100

*Scale of investment in horses. See Table 21.

Number of starters – Clearly not all race horses that are in training ever start a race. Nonstarters may be rejected for many reasons. The following estimates are derived from the mail survey. There was an unresolved inconsistency in the estimate for number of starters owned by trainers: horsemen who are trainers only by definition used in this study should not own starters.

Larger operators start the most horses and they also start a higher percentage of horses in training than do small operations. This observation reinforces the view, which emerges elsewhere in this report, that smaller operations are in the most difficult financial situation of all horsemen.

Table 30 – Estimated Number of Starters by Breed, Michigan, 1973.

Breeders	Starters
Standardbred	1,418
Thoroughbred	1,033
TOTAL	2,451

Table 31 – Estimated Percent of Starters by Activity of Horsemen, Michigan, 1973.

Activity	Percent
Owner	32
Breeder	0
Trainer	1
Owner-breeder	34
Owner-trainer	12
Breeder-trainer	0
Owner-breeder-trainer	21
TOTAL	100

Table 32 – Estimated Percent of All Starters and of Horses in Training by Scale of Operations of Horsemen, Michigan, 1973.

Scale*	Percent all starters	Starters as a percent of horses in training
Less than \$5,000	8	34
\$5,000 to \$20,000	22	41
\$20,000 to \$50,000	26	71
Over \$50,000	44	82
TOTAL	100	60

*Scale of investment in horses. See Table 21.

Number of brood mares – The following estimates are derived from two sources: the state totals of brood mares by breed were first determined from registration tables; then activity and scale breakdowns were performed by the method outlined on page 10. Then the interview survey was combined with mail survey results. No confidence limits need to be given since the average in this case is not an estimate but rather a population parameter.

Table 33 – Estimated Number of Brood Mares by Breed, Michigan, 1973.

<i>Breed</i>	<i>Brood mares</i>
Standardbred	3,600
Thoroughbred	640
TOTAL	4,240

Table 34 – Estimated Percent of Brood Mares by Activity of Horsemen, Michigan, 1973.

<i>Activity</i>	<i>Percent</i>
Owner	0
Breeder	3
Trainer	0
Owner-breeder	62
Owner-trainer	0
Breeder-trainer	0
Owner-breeder-trainer	35
TOTAL	100

Table 35 – Estimated Percent of Brood Mares by Scale of Operation, Michigan, 1973.

<i>Scale*</i>	<i>Percent</i>
Less than \$5,000	7
\$5,000 to \$20,000	19
\$20,000 to \$50,000	18
Over \$50,000	56
TOTAL	100

*Scale of investment in horses. See Table 21.



Number of stallions – The following estimates were based on mail survey results. The interview survey did contain questions regarding this variable but the results were seen as clearly not possible. As with the case of the number of brood mares, it is thought that either question ambiguity or oversampling of large-scale breeders is responsible for the poor showing of the interview survey in estimating horse population.

Table 36 – Estimated Number of Stallions by Breed, Michigan, 1973.

<i>Breed</i>	<i>Stallions</i>
Standardbred	289
Thoroughbred	131
TOTAL	420

Table 37 – Estimated Number of Stallions by Activity, Michigan, 1973.

<i>Activity</i>	<i>Percent</i>
Owner	0
Breeder	7
Trainer	0
Owner-breeder	43
Owner-trainer	0
Breeder-trainer	0
Owner-breeder-trainer	50
TOTAL	100

Table 38 – Summary: Estimates of Numbers of Race Horses, Stallions, Brood Mares, Weanings, Yearlings, and Race Horses Not in Training, Michigan, 1973.

	<i>Standard- bred</i>	<i>Thorough- bred</i>	<i>Total</i>
Race horses in training . . .	2,914	1,190	4,200
Stallions	289	131	420
Brood mares	3,600	640	4,240
Weanlings, sucklings	993	286	1,279
Yearlings	963	245	1,208
Race horses not in training	668	190	858

Summary – Two summary tables are offered. The first is a compilation of the estimates found in the above four sections of the horse population category plus estimates of weanlings and sucklings, yearlings and race horses not in training. As has been seen be-

Table 39 — Summary: Estimates of Average Value of Race Horses, Stallions, Brood Mares, Weanlings, Yearlings, and Race Horses Not in Training, Dollars Per Horse, Michigan, 1973.

	Standard-Thorough-Combined		
	bred	bred	breeds
	----- dollars -----		
Race horses	5,139	8,389	5,753
Stallions	8,660	25,052	12,035
Brood mares	2,182	4,172	2,592
Weanlings, sucklings	1,000	1,000	1,000
Yearlings	2,500	4,080*	2,820
Race horses not in training	1,000	1,600	1,133

*Estimated at 1/3 value of average of yearling sales in Maryland; see R. G. Lawrence, "Thoroughbred Yearling, A Look at the Market," AGRICULTURAL ECONOMICS, April 1975, University of Maryland. Standardbred yearlings priced proportional to race horses price ratio between breeds. Weanlings and sucklings valued at \$1,000 each; race horses not in training placed at a minimum estimated value.

fore, the vertical and horizontal sums do not quite match due to rounding error and changes in the structure of response. The second table gives the estimated value per horse as broken down by breed and use. These were estimated from the interview survey results. Nonetheless, no confidence limits are offered. It should be noted that the state horse inventory estimates of weanlings, yearlings and other horse categories is considered our least reliable estimate of all categories because greatly increased non-response problems made these estimates of doubtful value.

Income and Expenses

Since detailed income and expense information is available only from the interview survey, no further breakdowns by activity or scale are given (except for the variable "net income"). Confidence limits are offered only for the three variables of economic importance — gross racing income, gross racing expenses and net income.

Gross racing income — Gross racing income encompasses all income earned through owner, breeder, or trainer activities and includes purse money, breeder awards, sales of horses, trainer fees, etc.

Gross racing expenses — Gross racing expenses include all variable expenses such as hay, feed, bedding, veterinary services, vanning, etc., plus all fixed expenses such as depreciation, taxes and capital opportunity cost.

Table 40 — Estimates of the Average Horseman's Gross Racing Income, Gross Racing Expense and Net Racing Income, Michigan, 1973.

	High estimate	Low estimate	Estimate of the average
Gross racing income	\$23,202	\$12,766	\$16,586
Gross racing expense	34,726	20,202	27,464
Net racing income	-6,269	-16,095	-10,878

Table 41 — Estimates of the Average Horseman's Net Racing Income by Breed, Michigan, 1973.

Breed	Average net income
Standardbred	\$- 9,329
Thoroughbred	-16,678
TOTAL	-10,878

Table 42 — Reconciliation of Average Individual Income and Expense Survey Data, Horsemen, Michigan, 1973.

Gross racing income	\$16,586
Expenses	
Wages	1,369
Commissions	702
Payments in kind	174
Hay, feed, and bedding	3,112
Other racing expenses	1,110
Board (breeders only)	723
Stud fees	1,136
Syndication fees	13
Land rent	140
Trainer fees	4,676
Veterinary services and medicine	1,102
Farrier services	744
Vanning	585
Advertising, travel and photography	890
Licenses and registrations	95
Nominations and entries	644
Miscellaneous	1,093
Land tax	519
Depreciation	8,201
Insurance	636
TOTAL EXPENSES	27,664
NET INCOME	(\$-11,078)

Net racing income — Net income is the difference between gross racing income and gross racing expenses. It is curious that analyses of the mail survey showed that neither increased vertical integration nor increased scale increased net income; indeed, regarding vertical integration the situation is reversed⁵. Interview survey results, as might be expected, show just the opposite — net income increased with increased scale and vertical integration.

The estimates in Table 40 and 41 were taken from the interview and mail surveys. The overall average is taken from interview survey results while the break-downs are estimated from mail survey results, adjusted to that overall average.

⁵ See page 11. There may be ranges of efficiency within "small", "medium" and "large" operations which do reflect economies of scale.

Detailed income statement — In Table 42, income and expense detail is shown for the average horseman and does not take into account breed, activity or scale differences. It is all based on interview survey results, hence is consistent with the above net income estimate.

In Table 42, most of the difference between the estimate of net income (-\$11,078) and the previous estimate (-\$10,878) reflects estimates recorded in the two surveys. Note that family and operator labor is not costed and that inventory changes are only handled indirectly through the income estimate.

Chart 2 shows the distribution of net income among horsemen. Note that the central tendency is toward the break-even level but on the negative side.

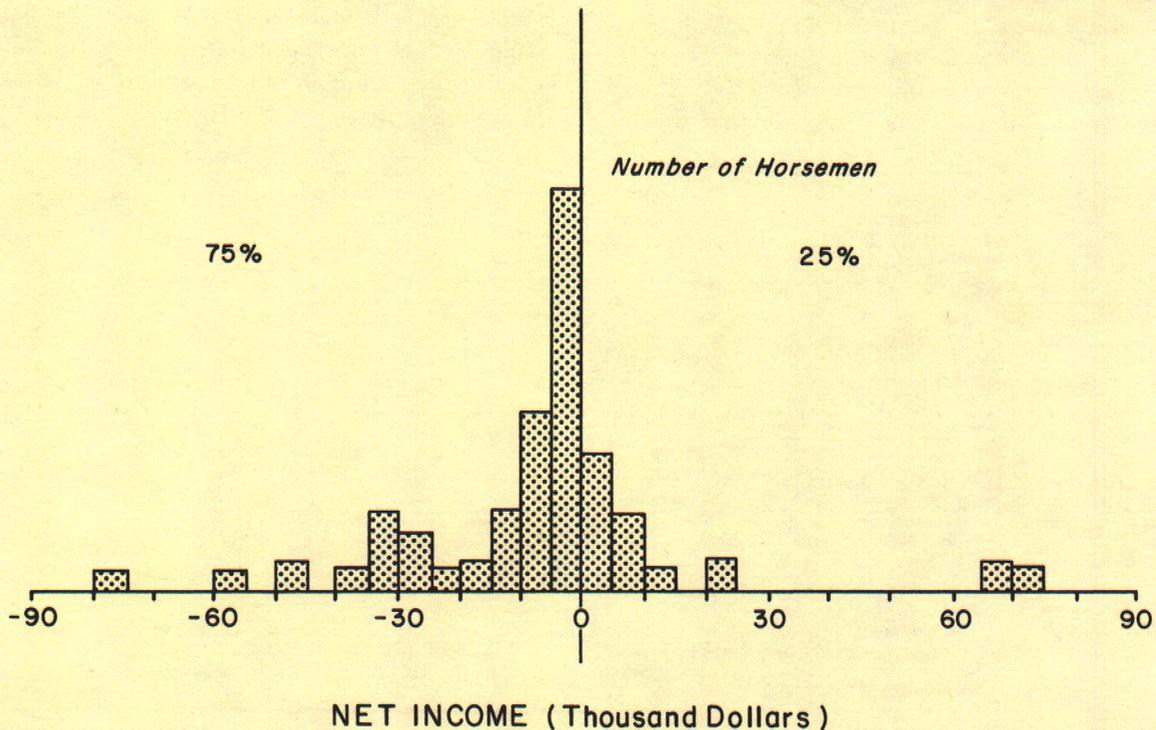


Chart 2 — Estimated Net Income Of Horsemen, Michigan, 1973.

Conclusions

WHILE THE RESULTS of the first two surveys of the horsemen subsector of the Michigan race horse industry have limitations, they do have some relevance in that they are first approximations of important variables. It is well to know that investment in the subsector is in the \$400,000,000 range, that the subsector uses around 235,000 acres of Michigan farmland for horse-related purposes while controlling a total of around 320,000 acres, and that it offers direct employment to almost 10,000 worker-equivalents. It is also noteworthy that racing income does not even cover operating expenses on the average, although standardbred horsemen seem to be in better shape in this respect than those running thoroughbreds. Finally, the fact that investment is stagnant or even declining offers powerful support to those arguing that the lot

of today's horseman is economically untenable.

The limitations of the survey instruments are discussed in some detail in the methodology section. A mail survey with a low rate of return of questionnaires combined with a low response rate on many questions as well as uncertainty about the business of those who did not respond make it difficult to analyze. However, one purpose of this report is to promote discussion, using the best estimates available.

The overall findings of this study reveal an industry that uses a significant measure of resources and infuses millions of dollars into the economy. Problem areas exposed feature (1) the high probability of financial losses for most horsemen, particularly those with very small operations and (2) the relative decline in growth at thoroughbred tracks.

