NATURE AND EXTENT OF FARM MACHINERY USE IN RELATION TO FREQUENCY OF ACCIDENTS IN MICHIGAN AND OHIO

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ABSTRACT

NATURE AND EXTENT OF FARM MACHINERY USE IN RELATION TO FREQUENCY OF ACCIDENTS IN MICHIGAN AND OHIO

By

Howard Joseph Doss II

The Farm Machinery Use Study was conducted to obtain information on tractor and farm machinery use that could be coordinated with existing data on farm accidents in order to determine accident frequency rates for various machines and operative conditions -- like age of operator, day of the week, type of farm, etc.

The results of the study showed that the accident frequency rate for tractors was somewhat lower than the established rate for all farm work. The rate for farm machinery, on the other hand, was higher than the rate for all work.

Tricycle-type tractors showed an accident frequency rate twice as high as that for wide-front tractors.

The accident frequency rate for tractors driven on public roads was four times as high as the overall rate for tractor use.

Operators under 15 years of age had the highest accident frequency rate of any age group. Operators between 25 and 64 showed the lowest rate.

Of all the farm machines studied, farm elevators showed by far the highest accident frequency rate.

There were no appreciable differences between Michigan and Ohio in the findings of the study.

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CHAPTER I

INTRODUCTION

Need for a Study

The productivity of American agriculture has shown astounding progress over the last quarter of a century and particularly during the last decade. Various developments, including new technology and bigger, more functional machinery, have contributed to this progress. Moreover, there is evidence to suggest that the rate of progress in farm efficiency and productivity will continue to accelerate in the foreseeable future.

Unfortunately, while advancing technology and the resulting increase in agricultural output has brought great good to many Americans, it has also brought problems. Among the more serious of these is an alarming increase in farm accidents.

Due mainly to hazardous conditions involved in the operation of increasingly large and powerful farm machinery, thousands of farm people are fatally injured each year, and hundreds of thousands are crippled or disabled.

Although losses in human resources alone amply justify corrective action, the cost of farm accidents is manifested in various ways. Most important among these are skyrocketing farm costs in the form of medical bills, idle equipment, work schedule disturbances, labor losses, and rising outlays for farm and ranch insurance coverage, not to mention

the grief and suffering generated by accidents, which cannot be expressed in monetary terms.

Secondly, because of the contention that private farm and ranch interests are failing to meet the challenge to reduce accidents in agriculture as it is being met in industry, attention of state and federal governments is being attracted to the farm accident problem. Typically, the government's approach has been to try to solve the problem with regulatory and legislative measures. Among the more important government actions to date in this regard are the following:

1. Compulsory state workmen's compensation programs for agriculture
2. Federal regulation of work rules for employment of young people in agriculture
3. Recently passed automobile safety legislation
4. The federal Occupational Safety and Health Act
5. The recent Department of Transportation hearings on safety legislation relating to farm tractors

The National Safety Council reports that nearly half of the deaths resulting from machinery accidents occur on farms and that approximately three-fourths of these involve farm tractors. The Council, Farm Bureau insurance companies, and others are concerned about the problem and the urgent need to secure data for developing corrective action programs.

Information presented at a 1971 meeting of the Farm Conference of the National Safety Council stated in part: "Necessity for new information from which to attack the roots of the problem becomes more obvious each day. Opinions are plentiful, but they are next to useless

in giving hard and fast guidelines for specific changes in equipment or procedures that will be of identifiable benefit."

Although specific information is limited, it is apparent that the problem of farm and ranch accidents is reaching alarming proportions. It is also apparent that in order to formulate intelligent plans for alleviating the problem, the first prerequisite is accessibility to factual information on the nature, causes, and surrounding circumstances of these accidents. The procedures for collecting information on farm accidents is available through materials developed by the National Safety Council. The Farm Machinery Use Study (FMUS) is designed to provide data on farm work exposure that can be coordinated with available farm accident information.

Determining the frequency of accidents in most nonagricultural industries is relatively simple. The number of accidents on a particular machine or job is divided by the number of hours workers are exposed to the machine. In agricultural operations, the determination of accident frequency rates is more complex.

Farmers and ranchers do not generally record the hours worked on a particular job, nor do they do the same type of work year-around. Numerous machines and labor-saving devices are common on today's modern farm. Work patterns are not well-established for farm machine use; a high-priority task is usually done first and the remaining tasks are completed on a priority basis. To determine accident frequency rates in agriculture, one needs to look at the number of accidents with a particular farm machine and the time spent by an operator on that specific machine.

Accidents have been documented in Michigan and other states

concerning specific farm machines. The study of accidents occurring to farm people in Michigan by Hofmeister (1968) gives a perspective of the accident phase of agricultural operations in Michigan.

The frequency of use of farm machinery with operator characteristics has not been determined accurately.

The need for a study of the nature and extent of use of farm machinery in relation to frequency of accidents is warranted to obtain accident frequency rates on selected pieces of farm machinery.

Overall Objectives

1. To develop a uniform procedure for obtaining and analyzing information on the nature and extent of farm machinery use. This procedure will be compatible with established methods for collecting farm accident data recently developed and used in Michigan and Ohio, and adopted by the Farm Department, National Safety Council.
2. To determine accident frequency rates per million man-hours of use of tractors, combines, balers, and other selected farm machinery. This information will:
   a. Serve as a basis for developing and evaluating farm accident prevention programs
   b. Be useful in better tailoring insurance policies and programs to meet the complex insurance needs of modern farmers and ranchers
   c. Provide specific facts from which fair and equitable insurance rates may be developed for farm accident coverages on different types of equipment and practices.

Specific Objectives

1. Hours of use and minutes spent on public roads by type of farm, day of the week, equipment ownership, and sex of operator of the following types of equipment:
   a. Tractor alone or hitched to one of the following types of machines:
      1) Harvesting Equipment
         -- Baler
         -- Mower conditioner
         -- Corn picker
         -- Forage harvester (chopper)
         -- Rotary mower
      2) Stationary or Materials Handling Equipment
         -- Forage blower
         -- Elevator
         -- Forage wagon
         -- Front-end loader
      3) Fertilizer and Chemical Application Equipment
         -- Manure spreader
         -- Anhydrous ammonia application equipment
         -- Boom sprayer
      4) Planting and Tillage Equipment
         -- Plow
         -- Planter
   b. Self-Propelled Equipment
      1) Combine

-- With corn head

-- With grain head

2) Mower Conditioner

2. Additional information on the total hours of tractor use, as well as minutes spent on public roads was desired. Wide, narrow, and crawler tractors were studied. For purposes of this study, tractor horsepower was grouped into the following classes:

Table 1. Tractor horsepower classes.

Tractor Horsepower Class	1	2	3	4
Horsepower Range	9 thru 39	40 thru 59	60 thru 99	100 and over

Yearly totals of hours of use and minutes on the public road for Michigan and Ohio, combined and separately, were gathered for:

Type of tractor

Tractor horsepower classes

Tractors according to year built

Tractors according to make (manufacturer)

By the following categories:

Age and sex of operator -- family labor

Age and sex of operator -- hired labor

Day of week

Type of farm -- according to crop or product

Size of farm -- acres

Time spent working farm -- full- vs. part-time farmers

Type of labor -- farm family, hired labor

Sex -- male, female

Hours of day (not analyzed at this time)

Fuel used

Ownership of tractor -- rented, borrowed, farmer-owned

Tractor make -- Allis Chalmers

-- J. I. Case

-- John Deere

-- Ford

-- International Harvester

-- Massey Ferguson

-- Minneapolis-Moline

-- Oliver

-- All others

Limitations to the Study

A survey of farms was conducted to gather data on the nature and extent of farm machinery use.

The following limitations were established:

1. The study will cover a one-year period from January 1, 1971 through December 31, 1971, in the states of Michigan and Ohio.
2. The study will be limited to farms that are similar to the U.S. Census Bureau's (1968) definition of a farm, and farms

that have petroleum-powered farm machinery[1].

3. The study will be confined to gathering use and exposure information on selected farm machines for accident frequency rate determination and to determine the need for improved machinery storage and relationships between good management and safety.
4. The size of the sample survey will be limited to about 2,500 farms from both states (approximately one percent of each state's farm population) due to financial and manpower considerations.
5. The study will be limited to farms located within the two states of Michigan and Ohio.
6. Data collected on the "One-Day Machine Operation Clock" will not be utilized at this time.
7. Some farmers using forage harvesters and other machines requiring a wagon to collect farm products did not record wagon use time. Therefore, this study will not account for wagon time in these situations.
8. This study will not necessarily account for more than one implement hitched to a tractor at one time.

Definitions

For the purposes of this study, the following terms and concepts were used:

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[1] See definition of "farm" on page 9.

Farm -- Any farm of 10 or more acres from which the annual sale of agricultural products totals $50 or more. Also, less than 10 acres if sales of agricultural products is $250 or more. All farms that meet the requirements above must also use farm machinery in the production of farm products.

Farm machinery -- All petroleum-powered farm machines used primarily on the farm in relation to some phase of production, handling, or transporting of farm products. Such things as electrically powered feed conveyors, pickup trucks, or rotary lawn mowers would not classify as farm machinery for the purposes of this study.

Tractor -- All tractors, regardless of size, used as sources of power in some relation to the production, handling, or transport of farm products.

Make -- Refers to the maker or manufacturer of a tractor.

Model -- A series of numbers, letters, or words that identify a specific tractor.

Year built -- The year a tractor was manufactured, not the year it was sold.

Narrow front -- A front single wheel or front wheels closer together than the rear wheels.

Crawler -- A tractor that uses a track in place of wheels.

Wide front -- A tractor with front wheels set as wide or almost as wide as the rear wheels.

Rented or borrowed tractors or equipment -- A farmer does not have to own tractors or self-propelled equipment to be included in the study. Use can be reported from machinery that is owned,

rented (leased), or borrowed, as long as it is operated by a family member or by his hired help. Custom work for others is included, but custom work being done for the farmer interviewed was not included. If a farmer and his neighbor share labor, and the farmer uses his neighbor's combine, it would be recorded as a borrowed combine. However, if the neighbor operates the combine on the farmer's land, it is not recorded. The user must be family or hired help to be reportable.

Type of farm (cash crop, dairy, livestock, fruit, general farming) -- In this study, the type of farm is determined by selecting the one commodity that is the major source of income. If this cannot be determined, the farm is recorded as general farming.

Employment off the farm -- Any work for which there is some type of reimbursement.

More hours employed off the farm -- Over one-half the farmer's working time performed off the farm.

Acres of cropland operated -- In this study, any land where farm machinery could be operated for production or for farm-related activities (e.g., tractor used on woodlot) is included to show acres of cropland operated. This includes rented land, orchards, etc., where machinery could be operated.

Fuel used -- Refers to the type of fuel used in tractor or power unit.

Relation -- Means in relation to the farm operator.

Age -- Age of operator on the day of the interviewer's visit.

Accident frequency rate -- For the purposes of this study, accident frequency rate is the number of accidents that resulted in injuries that required professional medical care (doctor,

hospital, nurse, x-ray, etc.), or resulted in the loss of one half-day or more of time from normal activities per 1,000,000 hours of exposure.

The following definition was accepted from "A Study of Accidents to Farm People in Michigan" by K. M. Hofmeister (1968):

Reportable accident -- Accidents which result in injury to a farm family member, regardless of where the accident occurs, or accidental injuries to hired hands while on the job are reportable. Injuries occurring to hired hands not on the job, or to their families, are not reportable.

CHAPTER II

REVIEW OF LITERATURE

Introduction

No studies were found that surveyed farm machinery use involving a log of time per operator per farm machine. Studies that determined the hours farm machines were used generally involved farmers' estimates of the number of hours they used their tractors during the year. Use of a daily log or record of machine time was not evident.

Related Studies

Related studies were reviewed, but meaningful content relative to the scope of the Farm Machinery Use Study was not generally found to be helpful in the survey or instrument design.

Some of the interesting approaches to collecting hours of use were:

1. Machinery Repair Cost Survey -- A survey of farmers who were paid to answer questionnaires on a monthly basis. This particular survey was to obtain the repair cost pattern for equipment used in cash grain farming. Use was recorded by asking for:
   a. Hours used during year 1966, and
   b. Acres covered during use for several farm machines used in cash grain operations.

2. A Computerized Farm Cost Accounting System -- A computerized weekly labor report that collected the job, enterprise, specific man-hours, regular man-hours, truck miles, auto hours, and special equipment hours specifying the tool used with a quantity (volume) rating on the work performed.
3. A Crude Framework for Bypassing Exposure -- A mathematical method used to employ numerical transformations of the accident data, based on plausible conjectures, for conversion of "raw" accident figures into "exposure-corrected quantities." This method did not collect hours of use; rather, it calculated relative involvement rates in accidents without determining exposure.
4. Application of Mathematical Formulas to Repair Cost Data -- In 1966, the Agricultural Engineering Department of the University of Illinois obtained repair cost and machine use data on 11 different machines on 1,800 Illinois and Indiana farms. To determine the annual hours of use, farmers were asked to estimate both hours and acres of annual use. Table 2 is from ASAE Paper No. 69-156.

Table 2. Average hours of annual use, Illinois and Indiana data combined.

Age Since New Years	Tractors	Combines	Pickers	Planters	Plows	Mowers	Balers	Forage Harvesters	Drills	Disks	Cultivators
1	428	222	124	75	151	49	57	48	56	111	83
2	483	231	120	64	154	52	76	91	49	105	99
3	495	207	87	64	115	38	76	78	26	105	90
4	554	157	91	60	110	53	89	53	31	99	82
5	504	148	71	57	123	43	60	57	33	102	105
6	449	128	74	52	111	43	65	26	25	67	86
7	468	99	77	64	139	36	63	77	21	92	84
8	471	80	76	43	84	35	54	106	26	92	58
9	485	99	57	55	98	31	51	1	24	69	65
10	455	68	63	39	85	31	41	68	27	61	66
11	461	64	48	46	60	34	34	-	23	67	45
12	422	59	52	38	60	31	41	65	24	60	68
13	407	66	32	41	72	32	74	-	32	72	65
14	362	52	52	36	62	36	35	-	19	63	54
15	382	54	35	32	78	25	31	28	41	72	63
16	374	38	39	31	68	32	35	-	16	43	42
17	349	41	46	56	72	39	41	-	18	33	33
18	281	31	50	25	50	27	24	-	24	20	43
19	455	30	63	35	85	18	20	-	20	57	64
20	284	29	34	31	46	24	-	-	20	28	33

Table 3. Projected farm machinery accidents, Michigan and Ohio, 1971.

Type of Accident	Mich[1]	Ohio[2]	Mich & Ohio	NSC 8-State Total Expanded Accident Data[3]
TRACTOR				
Tricycle (narrow)	189	399	588	
Wide Front End	231	177	408	
Other Tractors	---	54	54	
Not Identified by Type	231	---	231	
All Tractors	651	630	1281	6700
MACHINERY				
Corn Picker	114	159		700
Combine	152	265		1700
Wagon	493	371		4000
Elevator	152	424		2700
Baler	189	---		500
Other Machinery	682	848		7800
All Machinery	1782	2067		18200

Accidents involving farm equipment on Michigan public roads and highways was also obtained from Michigan State Police records. It is summarized in Table 4, which shows an analysis of 364 accidents involving farm equipment, resulting in only 60 tractor operator injuries.

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1 Projected by H. J. Doss from data accumulated by K. M. Hofmeister and R. G. Pfister, "A Study of Accidents to Farm People in Michigan."

2 Projected by G. Howard Phillips and W. E. Stuckey, Ohio State University, August 4, 1971.

3 Data from Bill Hanford, Farm Division, National Safety Council, May 30, 1972.

Table 4. Analysis of 364 accidents involving farm equipment on Michigan public roads and highways in 1971.

Age of Operator On Farm Equipment	Tractor Operator Injuries		
	Fatal	Disabling	Total
0 - 14	0	5	5
15 - 24	3	18	21
25 - 44	1	9	10
45 - 64	2	16	18
65 - Over	2	3	5
Not Stated	0	1	1
TOTAL	8	52	60

Ohio tractor accidents on public roads and highways were also obtained from Ohio State Police records and are summarized in Table 5, which shows 64 tractor operator injuries from the analysis of 359 tractor accidents on Ohio public roads and highways in 1971.

Table 5. Analysis of 359 tractor accidents on Ohio public roads and highways in 1971.

Age of Operator On Tractor	Tractor Operator Injuries		
	Fatal	Disabling	Total
0 - 14	0	4	4
15 - 24	4	11	15
25 - 44	2	10	12
45 - 64	0	19	19
65 - Over	1	13	14
TOTAL	7	57	64

A 10-county survey of farm accidents in New York found the following concerning tractors and farm machinery: "The accident frequency for tractors was low, 0.8 accidents per 100,000 hours of operation. All harvesting equipment had an accident frequency of 3.1 accidents per 100,000 hours of operation" (Hoff, 1970).

Table 6. Number of accidents involving selected machines per 100,000 hours of use on survey farms, New York, 1969.

Machine	Number of Farms	Average Hours[1] Used Per Year	Total Annual Hours of Use	Number of Accidents	Accidents Per 100,000 Hours of Use
Tractors	5,891	421	2,480,111	21	0.8
Mowers & Haybines	2,127	170	360,590	4	1.2
Corn Pickers	387	126	48,762	3	6.2
Forage Harvesters	1,334	135	180,090	11	6.1
Combines	712	113	80,456	3	3.7

Field machines with less than 3 reported accidents were not included.

Farm Accident Studies

Two studies were used as reference points in the design of this study:

1. Accidents to Farm and Rural Nonfarm People in Ohio (Phillips and Stuckey, 1967).

[1] Annual hours of use from farm account records averages, Department of Agricultural Economics, Michigan State University.

2. A Study of Accidents to Farm People in Michigan (Hofmeister and Pfister, 1968).

Both studies used similar methods and definitions to obtain a sample farm population. The results are therefore compatible. Findings from these studies were used as a basis for the accident component of the projected accident frequency rate.

Summary

From the previous studies reviewed, the following general observations may be drawn:

1. No studies involving a detailed daily log of farm machinery use per operator per farm machine were reported in the literature reviewed.
2. Studies of farm machinery use which asked farmers how many hours they used their tractors during the year were found, but specific exposure information using a detailed log or record of time per day was not evident.
3. Related studies were found that showed alternative methods for obtaining farm machinery exposure information.
4. State accident studies are increasing in number. More accurate and complete exposure data is needed to determine accident frequency rates.
5. Exposure and accident data on farm equipment operated on public roads and highways were not included in reports of various state accident studies.

CHAPTER III

PROCEDURES

Summary of Procedures

A proposal for a study of the nature and extent of use of farm machinery in relation to frequency of accidents was prepared by Dr. Richard G. Pfister during February 1970. The proposal outlined the objectives of the study, some of the points to be investigated, justification for conducting the study, and the procedures for conducting the study. No previous study of this type had been done in Michigan.

Investigation began on July 1, 1970, to establish procedures for obtaining and analyzing data on the nature and extent of farm machinery use. On September 2, 1970, arrangements were made with a nearby county (not one of the counties in the study) to pretest equipment and labor inventory forms with the farm machinery use form. Pretests were made on September 10 and 24, and October 15, 1970, by Doss and Hausmann. A meeting with persons concerned with this study representing Ohio State University, the National Safety Council, and the American Farm Bureau Research Foundation was held in Ohio on September 28, 1970, to review the forms developed. On October 22, 1970, a meeting with one of our interviewers was held to allow a final test of forms using one of our study counties and our hired local interviewer from that county.

Positive results from our pretesting schedule allowed the final

selection of interviewers and farms to be studied in each county during November 1970. Similar selections were made in Ohio by Ohio State University cooperators.

During December 1970, two interviewer training meetings were held to familiarize all interviewers on study and interviewing procedures to increase accuracy and consistency of data collection.

Developing the Questionnaire

Several questionnaires were developed and tested before the study started. It was determined that a two-stage questionnaire was of most value.

The total questionnaire was divided into two main parts, a yellow information sheet and a white with green ink, two-page farm machinery use form printed on NCR (noncarbon reproducing) paper.

The Basic Information Sheet (Appendix A-1) identified the person answering the questionnaire, size and type of farm, full- or part-time farmer, 16 questions on machinery storage buildings, and a question on an investment in a tractor cab.

The Farm Machinery Use form (Appendix A-2) was a log sheet that identified details on the tractors and self-propelled equipment used, family members or hired help operating the equipment, and a 14-day log of machinery use. Also on this sheet was a One-Day Machine Operation Clock that recorded the time of day the machines were used by operators. This form could accommodate 44 distinct entries on machine use with the provision that most common ruled sheets of paper could be added if more entries were necessary.

The questionnaire, along with supporting instructions, was

developed into an interviewer's training kit, which assembled all the necessary items for one interviewer to conduct the exposure study for a one-year period. The kits and forms were distributed at the training meetings.

Selection of Sample Counties

The technique for the selection of the sample farms to be surveyed was based upon a stratified-randomized procedure. This method insured that the sample would be both representative of all farming types in Michigan and Ohio, and also reflect the wide economic spectrum among like types of farming enterprises. For these reasons, a purely randomized sampling procedure would have been inadequate.

The procedure was to take each county and classify it according to the most predominant type of farming. The following 10 classes of farming were developed from Michigan agricultural statistics (the Ohio farm classes were based on the previous method used in the Ohio farm accident study).

Classes of Farming

1. Livestock -- A county with over $1 million of livestock sales, comprising over 30 percent of the income.
2. Fruit -- A county with over $2 million in the sale of fruit, comprising over 35 percent of the income.
3. Cash Crops I -- A county with over $15 million in sales of cash crops, comprising 45 percent or more of the county income.

Cash Crops II -- A county with over $7 million of cash crop sales, comprising over 45 percent of the county income.

4. Dairy I -- A county with over $5.5 million in dairy sales, and 35 percent of its income from dairy.

   Dairy II -- A county with $2 million or more in dairy sales, comprising 35 percent of the county income.

5. General Farming I -- County sales are $19 million or more in agricultural products.

   General Farming II -- County sales are $13 to $18 million in agricultural products.

   General Farming III -- County sales are $5 to $12 million in agricultural products.

   General Farming IV -- County sales are less than $5 million in agricultural products.

No fewer than 500 farms were accepted as a single group. In some cases, counties were grouped in order to make comparisons among a sufficient number of farms. This produced groups of farm classes that had farm populations of similar magnitudes.

A random county (counties) was selected as a representative of each of the 10 classes of farming. This provided 10 sample areas in each state from which a random sampling of farms could be chosen (see Figures 1 and 2).

Selection of Farms Within Sample Counties

From within each county or group of counties, the random sample of farms was chosen according to the following procedure:

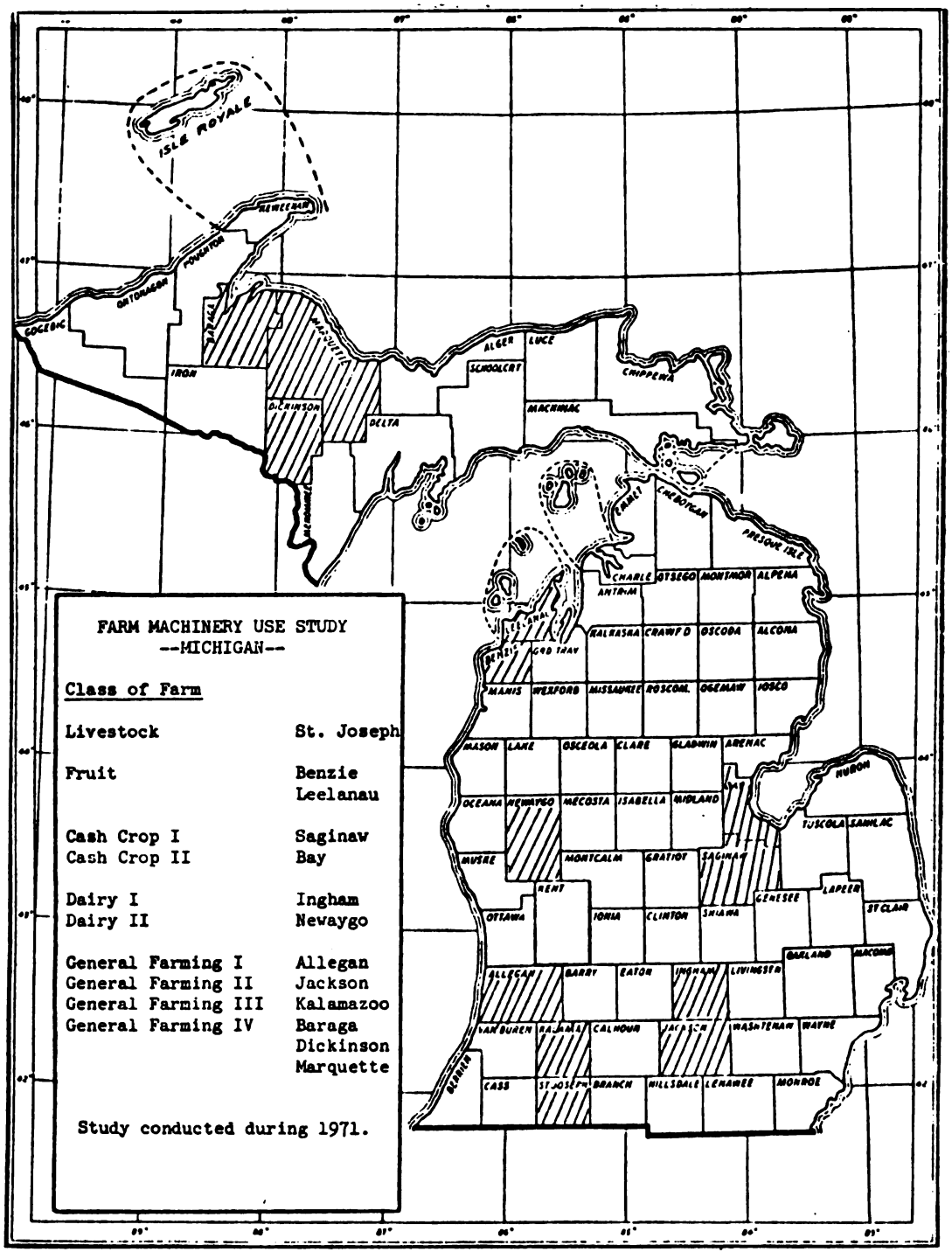

Figure 1. Michigan counties selected by a stratified-randomized sampling procedure.

Figure 2. Ohio counties selected by a stratified-randomized sampling procedure.

1. Each county agent has address plates or some type of mailing list for farmers in his county. The total length of the address plate drawers was measured and divided by 18, which is the number of visits the interviewer would make in that county.
2. These 18 farm people, identified by Step 1 above, were the starting points for each visit. Locating this person in the local county plat book, Mr. Doss, who was not thoroughly familiar with any of the areas involved, randomly selected a direction (north, south, east, or west) in which the interviewer would travel from the starting point.
3. With the aid of the county extension agent, the next seven farms in the direction selected from the starting point were identified so as not to skip any plot of ground that might have machinery use.

There were many considerations involved in deciding to use this technique. The first question that might be raised is whether the county agent's files truly represent a random sampling. The rationale used to justify its validity is: 1) It was believed that the county agent's file contained a majority of the productive farms in his district, with the exception of some of the marginal and part-time farms. Therefore, the general conclusion was that, although there was a small group not represented in the address files, the hours of machinery usage of these farms would be accounted for in the long run by the fact that we were sampling in the farming areas. Also, by choosing a random direction in which to travel, a marginal farm could easily gain representation in the survey. 2) It was the best

available list of farms for the county. 3) Upon testing the technique, it was found to represent a good random sample geographically as the starting farms were well distributed throughout the county.

Although the sampling technique appeared to be the best possible for the amount of manpower and monies available, two limitations are recognized. 1) The county agent's files tend to contain successful commercial farms and, therefore, starting points will be established in farming areas. Experience indicates that there are areas of good farms and likewise areas of poorer farms, due to such things as soil type or topography. 2) The county extension agent may introduce bias by assisting in the selection of the next seven farms down the road. His recall and experience is used in this selection, and therefore he has the opportunity to exclude an individual if he believes that the land is not being cultivated.

There are basically two situations in which the interviewer has the opportunity to introduce bias: 1) If no one can be contacted, the interviewer has the option of passing over a farm. Experience has shown that this farm may be a small, part-time operation. 2) If the interviewer decides to replace the missed farm with a substitute down the road (which is his option), he may choose a more prosperous farm, since the interviewer uses the appearance of the property as his criterion for deciding whether machinery is used on the property. He may also have a tendency to choose a larger farm on the basis that the farmer may be more cooperative.

These factors contributed to a less-than-expected representation of small, part-time farmers. Returns verify the presence of this situation, since the average farm interviewed was about 60 acres

larger than the average-sized Michigan farm, according to census information.

The breakdown on the type of farm for the survey, however, followed the 1964 U.S. Agriculture Census data in magnitude.

Table 7. Farm Machinery Use Study -- Ohio sample.[1]

Selection of Counties

The following was the method used for selecting the 10 representative counties for our 1971 Exposure Study.

1. Counties with a population of more than 500,000 were eliminated from consideration. These counties are: Cuyahoga, Summit, Lucas, Franklin, Montgomery, and Hamilton.

2. We selected one county from each Extension area by random numbering of each county in the area. Then one number was selected at random for the sample counties. A second number was drawn at random for a back-up county in each area. The following counties were selected:

Extension Area	Sample Counties	Alternate Counties
Defiance	Henry	Defiance
Wapakoneta	Auglaize	Hardin
Eaton	Miami	Preble
Washington C.H.	Clinton	Brown
Jackson	Meigs	Athens
McConnelsville	Harrison	Jefferson
Canfield	Trumbull	Geauga
Fremont	Erie	Wyandot
Mt. Gilead	Morrow	Knox
Wooster	Ashland	Coshocton

[1] By W. E. Stuckey, Ohio State University, 1970.

Table 8. Comparison of sample data versus 1964 U.S. Agriculture Census for type of farm in Michigan (in percent).[1]

Type	Cash Crops	Dairy	Livestock	Fruit	General
1964 Census	27.8	33.6	17.4	6.9	14.3
FMUS Study	30.8	26.0	17.3	11.9	6.8

Sample Size

The situation is quite complex regarding the statistical validity of the sample size. The technique involved could be considered as a sample within a sample within a sample. The first and most basic sample is the representative type and economic class sample. In other words, this sample should reflect all types and sizes of farms in Michigan. The technique to achieve this condition was the stratified-randomized sampling procedure described earlier. In terms of size, this sampling will constitute about one percent of all farms in Michigan. Excluding neglect of very small farming operations, this group should be highly representative of Michigan farming.

The real purpose of the survey, however, is to get a representative sampling of the hours of machinery usage of all farm machinery involving tractors and self-propelled equipment. Approximately 1,150 Michigan farms (1,050 in Ohio) were interviewed, and they logged or

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[1] Table by C. T. Hausmann and H. J. Doss.

accounted for a total of about 15,820 days. There is a potential for 25.5 million log days for all Michigan farmers. Therefore, in terms of percent of the potential of the population, the sample was approximately .062 percent of the total days.

With limited monetary and manpower resources, it is not feasible to obtain a 100-percent sample of the population's possible days of machinery usage. This would place a tremendous burden on all farmers in the state to keep daily machine use records for 365 consecutive days. Also, fatigue and guesswork would become a major problem if such a program were followed. Therefore, a smaller, more precise sample has the potential of providing reliable and valid data.

The highly seasonal usage of farm machinery also produces sampling difficulties. For example, sampling a farm in June will produce little combine usage. Therefore, this survey represents all types of seasonal operations and gives proper weight to each farm type, size, and class.

Two aspects that lend an added degree of representation to the sampling technique are:

1. Like types of farming enterprises will be performing essentially the same basic seasonal operations (i.e. plowing, planting, cultivating, and harvesting) that are necessary for the operation of that type of farming at that particular time period.
2. Similar types of farming enterprises will own and operate similar types of equipment. Studies show that 87 percent of all Class I dairy farms own a pickup baler, and 99 percent of all Class II cash crop farmers own combines (Wright, 1971). Therefore, in terms of the kinds of

operations being performed in a given period by a specific type of farm, there will be some similarity. Also, these same farms will likely have similar machinery to perform these functions, and, therefore, be exposed to similar hazards.

Every effort was made to assure that the selection of sample counties and the size of the sample reflect the farm populations of Michigan and Ohio and describe farm machinery usage in both states.

Selection of Interviewers

Twenty interviewers were hired by the Agricultural Engineering Department, Michigan State University, to conduct the survey with the help of each cooperating county extension director. Ohio State University selected the Ohio interviewers, with the help of each cooperating county agent and W. E. Stuckey.

County Extension Staff Cooperation

Cooperation was received from the County Extension Director and his staff in:

1. Helping locate and assist in the hiring of a qualified interviewer, as well as supervising the interviewer.
2. Assisting in the selection of 18 starting points from the mailing lists and establishing a list of seven farmers down the road from each starting point.
3. Providing the interviewer with a plat map, county map, and a mailing list (cards or plates) or ASCS list.

4. Preparing and distributing letters of introduction for 18 visits and self-addressed envelopes for return of data.
5. Serving as a reference for interviewers and as a mail drop for survey forms.

A contact was made with each of the county extension directors or agents in the Michigan sample, explaining the basic concepts of the study and asking their cooperation. All sample counties in Ohio were contacted by Ohio State University personnel, who also explained the study to the county agents in the Ohio sample.

Project Coordinators' Responsibilities

Overall project coordination was done by the project coordinators at Michigan State University. Since all interviewers were hired and paid by the Agricultural Engineering Department, Michigan State University, there was a direct line of responsibility from the interviewers to the project coordinators (Pfister and Doss).

Training meetings were held in Michigan and Ohio. The Michigan training meeting was held at Agricultural Engineering, Michigan State University (with the exception of one interviewer who lived farther than 500 miles from the MSU campus, in Michigan's Upper Peninsula, and was trained at his home by Doss), and the FMUS project coordinators were responsible for this meeting. The Ohio meeting was arranged by OSU cooperators and conducted by the FMUS project coordinators with the help of the OSU staff.

The FMUS project coordinators organized the meeting dates, trained the interviewers, developed the questionnaire, provided instructional

kits, set up sampling procedures, and analyzed data. Figure 3 shows the FMUS organizational structure.

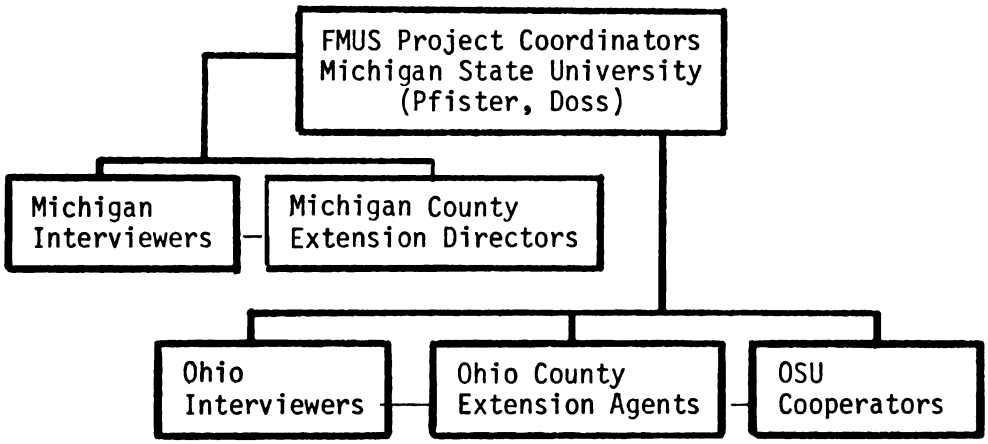

Figure 3. Farm Machinery Use Study organizational structure.

Training Meetings

On December 1, 1970, the Michigan Training Meeting was held at the Agricultural Engineering Building at Michigan State University. The agenda for the meeting was established and given to the interviewers.

An interviewer's kit was developed to aid interviewers in learning about the study and interviewing methods. The kit contained the following items:

1. Agenda
2. Brief facts about FMUS
3. 1970 Calendar of Events -- FMUS
4. FMUS Guidelines (12 pages)

5. Supplement (A) list of possible machines and equipment hitched to tractors
6. Visiting schedule for interviewers
7. Sample letter to introduce interviewer
8. Invoice for Machinery Use Data
9. Summary of key points
10. FMUS forms (basic information and log of machine use)

The meeting told of the background and importance of the study, how to use survey forms when interviewing, how to follow up on returned data from farmers, and procedures for sending in reviewed and completed data and getting paid. Overhead transparencies and a simulated interview with a typical farmer using a cassette tape recorder were used as instructional aids.

A similar Ohio training meeting was held on December 15, 1970, in Columbus, Ohio, at Ohio State University with the assistance of the Ohio State University cooperators.

Data Collection

Data was sent by U.S. mail to Michigan State University by the interviewers as soon as it was received from the sample farmers and reviewed by the interviewer. It was sent on a per-visit basis with late data returns sent with the following visit.

A constant monitoring of data received was done by Doss and Hausmann, using a returned-data checklist and postcard.

After a review of the data was received, the invoice for payment was checked for accuracy and a request for payment for data

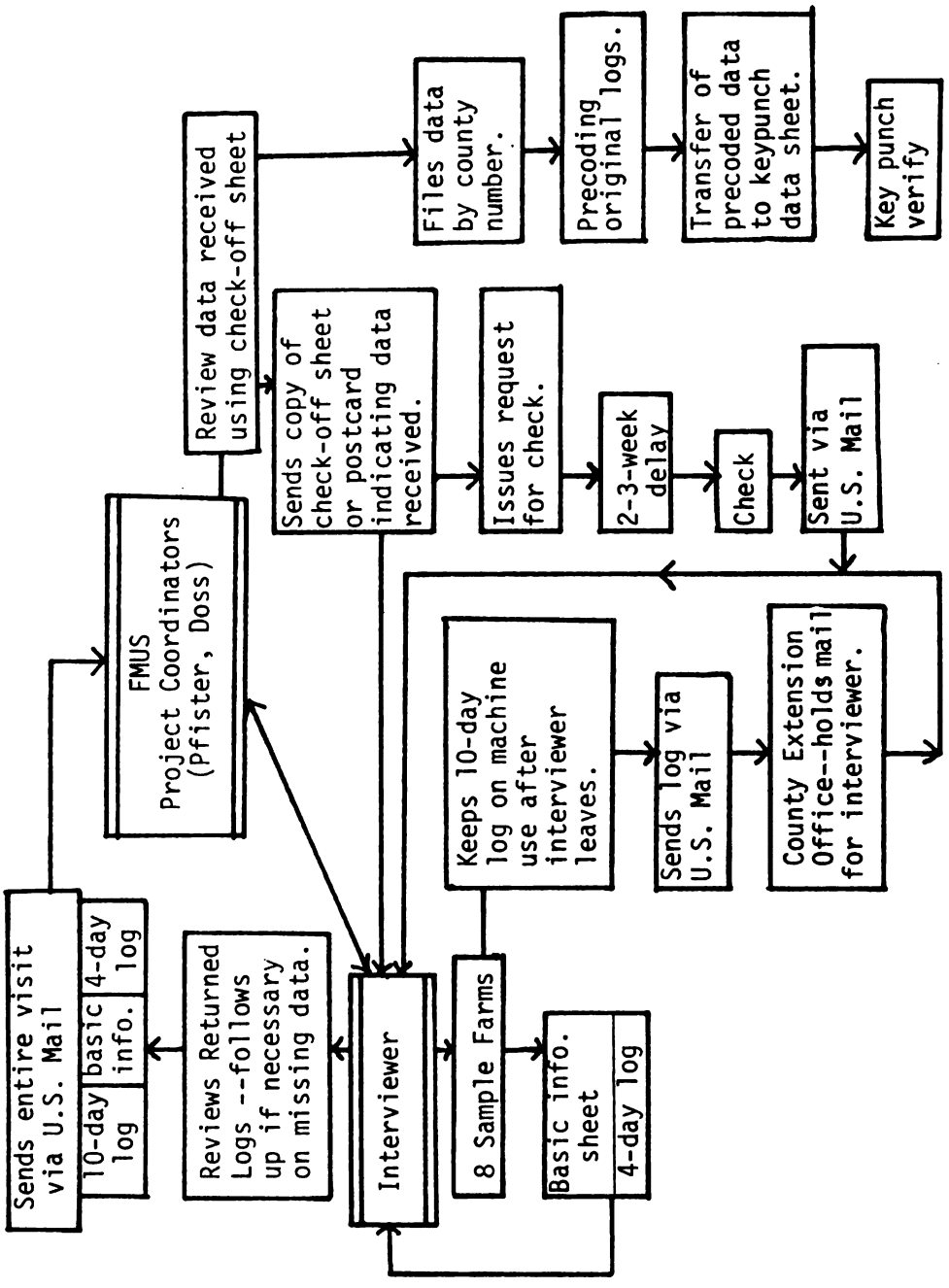

Figure 4. Data collection flow chart.

received was issued. A check was mailed from the Michigan State University payroll office directly to the interviewer.

All data received was acknowledged, using the checklist or postcard. Additional communication through a newsletter for interviewers was sent on an irregular basis.

News releases for use by the cooperating counties were also issued. Generally, news releases were used in local papers within the cooperating counties.

Summarization of Data

The data received from interviewers was first reviewed for correct information before being numerically coded on each original questionnaire. The information from these coded forms was then placed on a special code sheet to assist keypunch operators.

Each special code sheet was punched and verified to insure accuracy. The CDC 6500 computer at Michigan State University was used to accumulate the information from all FMUS forms. Appendix B contains the print-out from the computer program.

CHAPTER IV

RESULTS OF THE STUDY

Introduction

The data collected during the Farm Machinery Use Study was compiled by a CDC 6500 computer. The key for the computer-printed output on various machinery exposures precedes Appendix B. All machinery use data was projected to provide statewide perspectives on the nature and extent of machinery use.

Farm Machinery Exposure Data

Detailed information on all of the machinery included in the study is found in Appendix B. The intent of the following is to present some of the more important points -- not all the specific details. Refer to Appendix B, pages 81 - 146, for complete details.

Exposure on Tractors

(For Michigan and Ohio; exceptions are noted)

1. Hired Labor -- Males from 15 through 24 years of age were primary users of tractors. Use of tractors was so intensive in this 10-year age group that it exceeded use by males in the 20-year age group of 25 through 44.

   In Michigan, 50 percent of the hours of tractor use by hired labor involved tractors manufactured within the past

12 years.

In comparison, 34 percent of the hours of tractor use by hired labor in Ohio involved tractors manufactured within the past seven years, and 55 percent of the use involved tractors manufactured within the past 12 years.

The three highest levels of use of tractors by hired labor according to manufacturer were:

Michigan -- John Deere, International Harvester, and Case

Ohio -- International Harvester, John Deere, and Ford

Hired female labor using tractors was very low in both states (Appendix B, pages 83 and 116).

2. Family Labor -- Both males and females had the highest exposure on wide-front tractors. In Michigan and Ohio, 42 percent of the use of tractors by family labor was logged on tractors manufactured within the past seven years. In Michigan and Ohio, 61 percent and 58 percent, respectively, of the tractor use by family labor involved tractors manufactured within the past 12 years.

The three highest levels of use of tractors by family labor according to manufacturer were:

Michigan -- (Male) John Deere, International Harvester, Allis Chalmers. (Female) John Deere, International Harvester, Ford.

Ohio -- (Male) International Harvester, John Deere, Ford. (Female) John Deere, Ford, International Harvester (Appendix B, pages 84 and 117).

Table 9. Hours of tractor use in Michigan and Ohio according to hired and family labor (in thousands) during 1971[1], by age group.

	All Michigan Labor		Ohio Labor	
MALE	Hired	Family	Hired	Family
5 - 14	0	2,430	248	2,599
15 - 24	4,608	10,647	2,983	10,754
25 - 44	4,545	20,695	2,935	24,220
45 - 64	2,341	26,235	2,696	29,652
65 - Over	564	2,805	342	6,580
All Ages	12,058	62,812	9,204	73,805
FEMALE				
5 - 14	0	220	0	109
15 - 24	0	514	3	363
25 - 44	0	1,076	0	948
45 - 64	39	792	0	1,096
65 - Over	0	0	0	12
All Ages	39	2,602	3	2,528
	(12,097)	(65,414)	(9,207)	(76,333)
Total for all Michigan Labor = 77,511		Total for all Ohio Labor = 85,540		

3. Day of Week -- Generally, there were no appreciable differences between days of the week and exposure on tractors, with the exception of Sunday, which had about

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[1] Data was projected from Appendix B, and adjusted to the exposure that would reflect the most accurate exposure information per state.

one-third the exposure of any other day of the week.

4. Type of Farm -- Dairy farms had the most use of tractors in both states (Appendix B, pages 86 and 119).
5. Acreage -- Farms over 1,000 acres used a greater proportion of new tractors (less than six years old) than smaller farms. Farms under 50 acres used tractors 20 - 25 years old more total hours than any other five-year range in tractor age (Appendix B, pages 87 and 120).
6. Tractor Types -- There were obvious differences in extent of use by horsepower class and manufacturer. For example, International Harvester was the most extensively used 40 - 59 horsepower tractor in both states, while John Deere was most frequently used in the 60 - 100 and 100-plus horsepower classes (Appendix B, pages 88 and 121).
7. Fuel Used -- Gasoline-fueled tractors were used the most hours in each state; however, diesel-fueled tractors were more extensively used in the 60 - 100 and 100-plus horsepower categories (Appendix B, pages 89 and 122).
8. Ownership -- Over 90 percent of all tractors were owned by Michigan and Ohio farmers. Thirty percent of the rented tractors in Michigan were manufactured within the past seven years, as compared to 69 percent in Ohio.
9. Sex -- Female operators accounted for 5.9 percent of tractor exposure in Michigan, compared to 3.3 percent in Ohio (Appendix B, pages 91 and 124).

Table 10. Hours of tractor use (in thousands) in Michigan, according to type of tractor, by sex[1].

	TRACTOR TYPES			
SEX	Narrow Front	Crawler & Others	Wide Front	All
Male	23,484	1,084	48,385	72,953
Female	1,305	62	3,189	4,556
All Operators	24,789	1,146	51,574	77,509

Table 11. Hours of tractor use (in thousands) in Ohio, according to type of tractor, by sex[2].

	TRACTOR TYPES			
SEX	Narrow Front	Crawler & Others	Wide Front	All
Male	37,199	350	44,854	82,403
Female	1,024	3	1,832	2,859
All Operators	38,223	353	46,686	85,262

10. Type of Farmer -- Part-time farmers accounted for 9.3 percent of all tractor use in Michigan, as compared to 15 percent in Ohio (Appendix B, pages 92 and 125).

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[1] Data projected from Appendix B.

[2] Data projected from Appendix B.

Exposure with Tractors Hitched to Farm Machinery

1. Month -- Months of peak use vary with type of farm machine. For example, 63 percent of all plow use in Michigan and 68 percent in Ohio occurred in April and May.
2. Day of Week -- Generally, no appreciable difference was found in use by day of the week, with the exception of Sunday, which had about one-half the average exposure of the other days in the week (Appendix B, pages 95 and 128).
3. Type of Farm -- Hours of use of certain farm machines varied by farm type and by state. For example, use of anhydrous ammonia application equipment was highest on Michigan cash crop farms, but in Ohio, general farms logged the most hours of use of this equipment.
4. Ownership, Sex -- Most of the hours of machinery use involved machinery owned by the farmer, rather than being rented or borrowed. Females used various harvesting machines more extensively than planting and tillage, fertilizing, or materials handling machinery.

Exposure on Public Roads with Tractors

1. Hired Labor -- In Michigan, males from 15 through 24 accounted for 47 percent of use of tractors on public roads. In comparison, in Ohio, males from 15 through 24 had 35 percent of the exposure on public roads, using tractors.
2. Family Labor -- In both states, males from 45 through 64 years old had the highest use of tractors on the public roads and highways (Appendix B, pages 100 and 133).

Table 12. Hours of machinery use[1], Michigan and Ohio, 1971.

Farm Machine	PROJECTED HOURS OF USE (Millions of Hours) Michigan	Ohio
Corn Picker	2.346	2.551
Combine	1.354	2.942
Wagon	6.858	7.276
Elevator	0.265	0.432
Baler	1.776	2.900
All Farm Machinery Except Tractors	43.532	51.594

3. Day of Week -- Generally, no appreciable difference was found on hours of machinery use for different days of the week, with the exception of Sunday, which had about one-third the exposure of other days.
4. Type of Farm -- Employees and family members on dairy farms had a higher exposure on the public roads.
5. Acreage -- Employees and family members on farms operating 200 through 499 acres were highest in public road use with tractors of all types (Appendix B, pages 103 and 136).

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[1] Data projected from Appendix B. Largest value was used per farm to reflect the most accurate exposure information per state.

6. Tractor Types -- The most frequently used tractor on the public road, in the horsepower class of 60 through 99, was John Deere. In the 40 through 59 horsepower class, it was International Harvester (Appendix B, pages 104 and 137).
7. Fuel Used -- Gasoline-fueled tractors dominate the public road for all tractor types; however, diesel-fueled tractors have the highest use on public roads of all wide-front tractors and with all tractors in the 60 through 99 horsepower class in both states (Appendix B, pages 105 and 138).
8. Ownership -- Ninety-eight percent of all tractors used on public roads were owned by farmers in Michigan and Ohio.
9. Sex -- Males accounted for 96 percent of all tractor use on public roads (Appendix B, pages 107 and 140).
10. Type of Farmer -- Part-time farmers in Ohio accounted for 12 percent of all tractor use on public roads. In contrast, Michigan part-time farmers accounted for 5.5 percent of all use on public roads (Appendix B, pages 108 and 141).

Exposure on Public Roads with Farm Machinery

1. Month -- The two farm machines hitched to tractors and used the most hours on public roadways were wagons and manure spreaders (Appendix B, pages 110 and 143).
2. Day of Week -- Generally, there was no appreciable difference between days of the week in regard to exposure of farm machinery on the public road (Appendix B, pages 111 and 144).
3. Type of Farm -- Dairy farmers are most likely to be on the public road with farm machinery in both states. For example,

approximately 50 percent of the use of wagons on public roads is by dairy farmers (Appendix B, pages 112 and 145).

4. Ownership, Sex -- Males are the primary users of farm machinery on the public road. This machinery was mainly owned by the farmer in both states.

Projected Farm Accident Frequency Rates

Accident statistics used in establishing the accident frequency rates reported in this study are based on Hofmeister's "A Study of Accidents to Farm People in Michigan" and "Accidents to Farm and Rural Nonfarm People in Ohio" by Phillips and Stuckey. In addition, farm equipment accidents on public roads as reported by Michigan and Ohio State Police are used as a basis for public highway farm equipment accident frequency rates.

The average accident frequency rate for Michigan farm work is approximately 20 accidents per million man-hours, as reported in Hofmeister's study (1968). Data presented in Table 13 indicates that the tractor accident frequency rates are lower than the average farm accident rate.

Table 13 also indicates that tricycle-type tractors generally show a higher accident rate than those with wide front ends. In general, there are no appreciable differences between Michigan and Ohio in this regard.

Table 14 indicates that tractor operators under the age of 15 have the highest accident rate -- almost six times the average. Operators in the 25 - 65 age groups have the lowest average accident frequency rate.

Table 13. Projected overall tractor accident frequency rates, Michigan and Ohio, 1971.

Tractor Type	Accidents per million hours of use[1] Michigan	Ohio
Tricycle (narrow)	10.3[2]	10.4
Wide Front End	6.1[2]	3.8
All Tractor Types	8.4	7.4

Table 14. Projected overall tractor accident frequency rates by age of operator[3], Michigan, 1971.

Age of Tractor Operator	Accidents per million hours of use Michigan
10 - 14	43.0
15 - 24	9.6
25 - 44	4.5
45 - 64	5.6
65 - Over	29.7

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[1] Based on hours of tractor use by type of tractor, Tables 10 and 11, and accident statistics, Table 3.

[2] There were 231 tractor accidents reported that were not identified according to tractor type. These were distributed according to the 45 percent narrow / 55 percent wide front end accident ratio established by Michigan statistics where the tractor type involved had been identified.

[3] Source for age data: Pfister, 1971.

Table 15 indicates the severity in tractor operator accidents. Operators ages 5 through 14 and 65 and over have the highest fatal accident frequency rates of all age groups. In Table 15, the total number of fatal accidents of 30 in Michigan and 27 in Ohio is based on reports from state departments of health from both states. The distribution of fatal accidents by age of operator is based on an average percentage over the past 15 years, rather than the actual 1971 total. This was used as the best measure of the number of fatal accidents by age, since a small change in number of deaths in any age group leads to wide fluctuations in rate.

Machinery had an appreciably higher accident frequency rate than tractors, as indicated in Table 16. Elevators appear to be the most dangerous type of farm machine, from an accident frequency rate standpoint. Accident frequency rates for all machines seem identical for both states.

The accident frequency rate on public roads appears to be four times higher in both states than average tractor work, as indicated in Table 17. The 65-and-over age group has the highest rate, followed by persons under 15 years of age.

Table 15. Projected overall fatal tractor operator accident frequency rate, Michigan and Ohio, 1971.

Age of Operator	Fatal Accidents 1971 MICH[1]	Fatal Accidents 1971 OHIO[2]	Million Hours of Use of Tractor[3] MICH	Million Hours of Use of Tractor[3] OHIO	Fatal Accidents per million Hours of Use MICH	Fatal Accidents per million Hours of Use OHIO
5 - 14	3.0	1.9	2.650	2.956	1.10	0.70
15 - 24	3.7	3.7	15.769	14.103	0.24	0.26
25 - 44	5.4	5.4	26.316	28.103	0.21	0.19
45 - 64	9.6	8.4	29.407	33.444	0.32	0.25
65 - Over	8.3	7.6	3.369	6.934	2.50	1.10
TOTAL	30	27	77.511	85.540		
			OVERALL FATALITY FREQUENCY		0.39	0.32

[1] Source for age data: Pfister, 1971.

[2] Source for fatal accident data: Stuckey, 1971.

[3] Use data from Table 9.

Table 16. Projected overall farm machinery accident frequency rates, Michigan and Ohio, 1971.

Farm Machine	Accidents Per Million Hours of Use[1] Michigan	Ohio
Corn Picker	48.6	62.3
Combine	112.0	90.1
Wagon	71.9	51.0
Elevator	573.6[2]	981.5[2]
Baler	106.4	ID[3]
All Machines Other Than Tractors	40.9	40.1

[1] Accident data from Tables 4 and 5. Hours of machinery use data from Table 12.

[2] Accident data includes all elevators -- exposure data includes petroleum-powered elevators only.

[3] ID = Insufficient data.

Table 17. Projected accident frequency rates for farm equipment on public roads and highways, Michigan and Ohio, 1971.

Farm Machine	Incident Reported per Million Hours of Use[1] MICHIGAN	OHIO	Accidents per Million Hours of Use[2] MICHIGAN	OHIO
Tractors and Self-Propelled Equipment	205.0	145.0	33.8	25.9
Age of Operators Injured on Farm Equipment				
0 - 14	Not Available		66.7	50.0
15 - 24			52.1	24.8
25 - 44			17.6	17.3
45 - 64			31.6	19.9
65 - Over			96.8	101.5

[1] Report rate is based on incidence of reportable accidents involving farm equipment that was investigated by the Michigan and Ohio State Police. These reports include incidence of property damage, in addition to injury accidents. Ohio data included those involving only one tractor.

[2] Accident rate is based on frequency of injury or death of operators on farm equipment involved in accidents on public roads or highways that were reported to the Michigan and Ohio State Police. Riders or passengers were not included.

CHAPTER V

SUMMARY

Introduction

The primary objective of this study was to determine accident frequency rates per million man-hours of use of tractors, combines, balers, and other selected farm machinery. Farm accident data had been established in Michigan and Ohio, so the main purpose of this study was to obtain and analyze information on the nature and extent of use of farm machinery in the two states. Once the hours of use of various types of machines was established, accident rates were calculated by relating hours of use to existing machinery accident data.

Review of Literature

Several studies were reviewed, but none were based on a daily log system. Some of these studies included:

1. Machinery Repair Cost Survey -- used monthly questionnaires to determine cost patterns for equipment used in cash grain farming.
2. A Computerized Farm Cost Accounting System -- collected data on the job, enterprise, regular and specific man-hours, truck miles, auto hours, special equipment hours, and so on.

3. A Crude Framework for Bypassing Exposure -- presented a mathematical formula for converting "raw" accident figures into "exposure-corrected quantities" without actual exposure.
4. Application of Mathematical Formulas to Repair Cost Data -- involved a repair cost survey on 11 machines on 1,800 farms in Illinois and Indiana.

Statistics compiled by the Michigan and Ohio State Police were also reviewed.

Two studies served as reference points in the design of this study. One was "Accidents to Farm and Rural Nonfarm People in Ohio" (Phillips and Stuckey, 1967). The other was Hofmeister's "A Study of Accidents to Farm People in Michigan" (1968).

These studies used similar methods and definitions to get their sample farm populations. The findings from these studies were used as a basis for the accident component of the projected accident frequency rates with the various types of farm machinery.

Procedures

Howard J. Doss and Dr. Richard G. Pfister of Michigan State University's Agricultural Engineering Department were the two FMUS project coordinators. They were responsible for establishing procedures for the study for both states. They developed questionnaires, selected and trained interviewers, selected sample counties and farms, and handled and evaluated the data.

W. E. Stuckey of Ohio State University handled the selection of interviewers for Ohio and other Ohio phases of the study.

1. The Questionnaire -- After testing several types of questionnaires, it was determined that a two-stage type would be the most useful for this study. The first part of the questionnaire requested information about the farm -- its size and type, and whether it was a full- or part-time operation. The second part was a 14-day log sheet, which collected detailed information concerning tractor and farm machinery use.

2. Selection of Counties -- Ten sample areas for the study were selected in each state, using a stratified-randomized procedure. First, each county was given one of 10 classifications, according to its most predominant type of farming. The classifications were: Livestock, Fruit, Cash Crops I and II, Dairy I and II, and General Farming I, II, III, and IV. (More than one class within a certain type of operation indicated different levels of income.)

   After the counties were classified, a sample county or area was randomly selected to represent each of the classifications.

3. Selection of Farms Within the Counties -- To select the sample farms in the selected counties, county extension agents were consulted. Their farm mailing lists were divided by 18, and each of these 18 farms became a starting point. From the starting point, the interviewer visited the next seven farms in a randomly chosen direction (north, south, east, or west). A total of 18 visits to groups of seven or more farms was scheduled during the year for each of the interviewers.

4. The Interviewers -- Twenty interviewers were hired by MSU's Agricultural Engineering Department. The Ohio interviewers were selected by Ohio State University with the help of the participating county agents and W. E. Stuckey.

   These interviewers were prepared for their year-long assignment at special training sessions at East Lansing, Houghton, and Columbus. They were supplied with training kits developed by the project coordinators.

5. Data -- Data from 2,219 farms was sent to the project coordinators by the interviewers as it was collected. It was then checked for accuracy, transferred to special code sheets, and run through a CDC 6500 computer at Michigan State University. The final results were evaluated and interpreted by the project coordinators.

Findings

Machinery Use Data (Statewide Projection)

Total hours of use of tractors in Michigan was 77,511,000 hours per year, and 85,540,000 hours of use per year in Ohio. In both states, tractor operators under 25 accounted for less than 25 percent (24 percent in Michigan; 20 in Ohio) of the total tractor use hours, compared to tractor operators 25 through 64 years old, who logged 71 percent of the total hours. Operators over 64 accounted for less than 9 percent (5 percent in Michigan; 8 in Ohio) of all the hours of use of tractors.

Tractors on the public roads and highways represented about 3 percent of the total hours of tractor use.

Hired labor logged 15 percent of the total hours of tractor use

in Michigan and 11 percent in Ohio. Males from 15 through 24 and from 25 through 44 accounted for about 35 percent (38 percent in Michigan; 32 in Ohio for both groups) of the total hours of tractor use in each age group. Male tractor operators 45 years old and over accounted for the remaining 30 percent of tractor use hours.

In Michigan, 50 percent of hours of use of tractors by hired labor involved tractors manufactured within the past seven years, and 70 percent of the use involved tractors manufactured within the past 12 years.

In comparison, 34 percent of the hours of tractor use by hired labor in Ohio involved tractors manufactured within the past seven years, and 55 percent of the use involved tractors manufactured within the past 12 years.

Hired female labor using tractors was very low in both states.

One-third of all tractor use in Michigan (two-fifths in Ohio) involved tricycle-type tractors, while almost two-thirds of the tractor use in Michigan (one-half in Ohio) involved wide-front tractors. Use of crawler-type tractors represented only about one percent of the total tractor use in both states.

Almost 60 percent of tractor use in both states involved gasoline-fueled tractors, with about 40 percent of the tractor use associated with diesel-powered tractors. Use of LP-gas-fueled tractors was very low.

Two percent of the tractor use involved tractors over 100 horsepower, with 31 percent of the tractor use involving tractors under 40 horsepower.

Farmers recorded the highest number of hours of use on equipment

classified in the stationary or materials handling category. The fewest hours logged for any group of farm machines occurred with fertilizer and chemical application equipment category for Ohio, and the harvesting equipment category for Michigan. The category including self-propelled equipment accounted for about five percent of the total use hours.

Plows, manure spreaders, and wagons had the most hours of use of any equipment hitched to the tractor. Plows were highest in Ohio, and manure spreaders had the most use in Michigan.

The two farm machines with the most hours of use on public roads and highways were wagons and manure spreaders. Approximately 50 percent of the use of wagons on public roads was by dairy farmers. This might be partially explained by the fact that dairy farmers had the most use of tractors in both states.

Farms over 1,000 acres used a greater proportion of new tractors (less than six years old) than smaller farms. Farms of less than 50 acres used tractors from 20 to 25 years old more total hours than any other five-year range in tractor age.

Accident Frequency Rates Per Million Man-Hours

The overall farm accident frequency rate for Michigan is approximately 20 accidents per million man-hours. The tractor and farm machinery accident rate was found be be 30 (30.4 for Michigan; 29.7 for Ohio). The accident frequency rate for all farm machines other than tractors is 40 for both states. Tractors (both wide and narrow front end) have accident frequency rates of 8.4 and 7.4 in Michigan and Ohio, respectively. The tractor accident frequency rate is less

than that of average farm work and lower than the average farm machinery accident rates.

The overall rate of accidents for farm equipment on public roads and highways is 33.8 accidents in Michigan, and 25.9 in Ohio. Operators of farm equipment on public roads and highways under the age of 15 have accident frequency rates twice as high as the overall rate on public roads and highways. However, operators over 65 have accident rates on public roads that are three to four times as high as the average.

Tractors with narrow front ends have a higher accident frequency rate (10.3 for Michigan; 10.4 for Ohio) than wide front end tractors, by a factor of almost two to three times the wide-front tractor accident frequency rate.

Operators of tractors in Michigan under the age of 15 and over 64 have from seven to ten times the accident frequency rate of tractor operators in the 25-through-44 age group, whose relatively low rate is 4.5 accidents per million man-hours.

The severity rate (rate of tractor operator fatalities) is about one death for every 2,560,000 hours of tractor use in Michigan, and one death for every 3,120,000 hours of use in Ohio. In the under-15 and over-64 age groups, the severity rate is two to four times greater than the average.

Farm machinery accident frequency rates are twice as high as that for average farm work, and four to five times as high as that for tractor operation. The overall farm machinery accident frequency rate of 40 is exceeded by the machines shown in Table 18.

Table 18. Farm machines exceeding the overall farm machinery accident frequency rate.

Farm Machine	ACCIDENT FREQUENCY RATE Michigan	Ohio
Corn Picker	48.6	62.3
Wagon	71.9	51.0
Baler	106.4	---
Combine	112.0	90.1
Elevator	573.6	981.5

CHAPTER VI

CONCLUSIONS

1. Tractor operators have a very high accident frequency rate on public roads and highways, as compared to general farm or tractor work.
2. A higher tractor accident rate is experienced by young operators under 15 years of age and older operators over 64 years old. This reaches greater proportions when operators in these age groups use tractors on the public roadway.
3. A relatively low accident frequency rate exists for tractor operators from 25 through 44 years of age.
4. Farm elevators have a very high accident frequency rate compared to all other farm machines, even if one considers electric-powered elevator use to be high.
5. Harvesting machinery accident frequency rates (70 to 100-plus) are greater than rates of fertilizing, materials handling, or tillage and planting equipment (average farm machine rate = 40).
6. The farm machinery accident frequency rate is twice as high as the overall farm accident frequency rate in Michigan.
7. The tractor accident frequency rate is less than one-half the Michigan farm accident frequency rate of 20 accidents

per million man-hours.

8. The tractor and machinery accident frequency rate is 50 percent more than the farm accident frequency rate in Michigan.
9. Frequency rates for the operation of farm machinery in Michigan and Ohio were not appreciably different, although measurable differences did occur in some instances.
10. The tricycle-type or narrow-front tractor accident frequency rate was appreciably higher than the rate for wide-front tractors.
11. Females make rather minor use of tractors, especially hired females. Most of the hours of use by women operators involved harvesting machinery.
12. Over 84 percent of tractor work was done by family labor in both states.
13. Over half of the hours of use of tractors and farm machinery in Michigan and Ohio occurred during the months of April, May, June, and October.
14. It takes 10 years after a new tractor design is provided before it is involved in as much as 50 percent of the total tractor use by employees in Michigan and Ohio.
15. Corn pickers and wagons are in the same accident frequency rate range (51 to 62) in Ohio.
16. Balers and combines are in the same accident frequency rate range (106 to 112) in Michigan.
17. Approximately one fatality occurs to the operator of a farm tractor for every 2.86 million hours of tractor operation.

For youth under 15 years of age, it is one fatality per 1.11 million hours of tractor operation.

CHAPTER VII

RECOMMENDATIONS

Education

1. Emphasize the importance of tractor operator training at the pre-high-school level (15 years old and under). 4-H club programs should expand their tractor operator training programs to meet this need, or summer programs should be initiated at the pre-high-school level.
2. Educational programs should give more emphasis to farm machines with the highest accident frequency rates. These include such machines as portable elevators, balers, combines, and wagons.
3. Use the mass media to develop awareness of the increased hazards associated with people over 64 years old operating tractors and farm machinery.
4. Educational programs for operators of farm equipment should emphasize the hazards associated with the operation of farm machinery on public roads and highways, and safe operator practices that should be used when on the public road.
5. Driver education classes should intensify their instruction on slow-moving vehicles on public roads, with emphasis on slow-moving farm machinery.

Legislation

1. Action should be taken to regulate the eligibility of a person to operate tractors and farm equipment on public roads (automobile driver's license, farm tractor operator's license, other?).
2. Portable farm elevators should be included in the United States Department of Labor's hazardous occupations order affecting youth under 16 employed in agriculture.
3. Rollover protection systems should be standard equipment on new tractors manufactured in or imported into the United States as a means of reducing the severity rate of tractor accidents.

Engineering

1. Narrow-front tractors should be reevaluated from a safety standpoint.
2. Manufacturers of portable elevators should make major changes to provide a safer product for farmers.

Research

1. A study of the nature and extent of wagon accidents should be conducted.
2. A study should be conducted concerning farm machinery on public roads and highways, using state police farm machinery accident investigation reports, to determine the causative factors and corrective measures needed to reduce the farm equipment accident frequency rate on the public road.

3. Determination of livestock handling, tools and power equipment, and other related accident frequency rates should be made to compare to the rates already established for tractors and farm machinery.
4. More detailed information on farm machinery accidents is needed to calculate accident frequency rates, such as accidents by:
   a) Age of tractor
   b) Horsepower of tractor
   c) Age of operator

   More comprehensive data is needed on the type and age of machines involved in the accident, including number of accidents involving the following:
   a) Manure spreaders
   b) Mowers
   c) Manure loaders
   d) Many others

   More comprehensive farm machinery accident data is needed in order to establish accident frequency rates for all items of equipment used by farmers.

APPENDICES

APPENDIX A

Appendix A-1

BASIC INFORMATION

DATE _____ Farm Machinery Use and Storage FARM NO. | | | | | | (Co. | Visit | No.)

NAME _____ TELEPHONE _____

ADDRESS _____ CITY _____ ZIP _____

PERSON ANSWERING QUESTIONS? ☐Operator ☐Wife of Operator ☐Other _____

1. Are you (operator) employed off the farm? ☐NO ☐YES → Do you work more hours ☐off farm or ☐on farm.

2. From what farming operation do you receive most of your income?
☐Cash Crop ☐Dairy ☐Livestock ☐Fruit ☐General Farming

3. How many acres of cropland do you operate including pastures and land diverted to soil bank? (This includes rented land, orchards, etc. where you could operate machinery).
_____ ACRES.

4. Where do you store most of your farm machinery? _____

5. Have you put up a new machinery storage building in the last 5 years?
☐NO ☐YES →
a. What SIZE is it? (width)_____ (length) _____
b. Is there anything about that building that you would change if you could?
_____

6. Do you think that a separate machinery storage building is worth the investment for you on your farm?
☐YES ☐NO → SKIP TO QUESTION 19

LET ME GET AN INDICATION OF YOUR PREFERENCES FOR A MACHINERY STORAGE BUILDING.

7. What outside COVERING do you prefer? ☐Aluminum ☐Steel ☐Wood ☐Other
*If Steel or Aluminum ☐Color Coating or ☐Unfinished

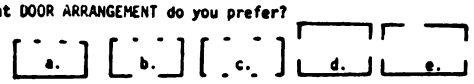
8. What FRAMING Material do you prefer? ☐Steel ☐Wood ☐no preference

9. Do you want a shop in this building? ☐NO ☐YES → Heated? ☐NO ☐YES

10. What style ROOF do you prefer?

f. Other (sketch)

11. What DOOR ARRANGEMENT do you prefer?



f. Other (sketch)

12. Would you have any open sides on this building? How Many? 1 2 3 4 or ☐None

13. Would you put up a machinery storage building by YOURSELF ☐; or hire a CONTRACTOR ☐.

14. Do you have plans to build or buy a machinery storage building in the next 5 years?
☐YES ☐NO → SKIP TO QUESTION 19

15. How big do you expect it to be? (width)_____ (length)_____ or ☐don't know.

16. What kind of a machinery door do you want? ☐Hinged ☐Sliding ☐Overhead or ☐No Door.

17. What kind of LIGHTING? (check all that apply) ☐Windows ☐Skylights ☐Electrical ☐None

18. Would you want any of the following features in this building? (check all that apply)
☐Ventilators ☐Partitions ☐Grain Storage ☐Insulation
☐Electrical Outlets ☐Service Door ☐Concrete Floor ☐Other _____.

19. Do you plan any other farm buildings in the next 5 years?
☐NO ☐YES (state) _____.

20. Is a cab on a new tractor an investment that you might make in the next five years?
☐NO ☐YES →
Which two features would be most important to you? (check)
☐Weather protection ☐Air conditioner
☐Overturn protection ☐Noise and vibration reduction
☐Heater - defroster ☐Comments: _____.
Which is the least important? [Indicate by zero (0)].

Appendix A-2

Machinery Use Log

FARM MACHINERY USE STUDY

County	Visit	Farm
— —	— —	—

I. LIST TRACTORS USED (during 2 weeks covered by this study)

	MAKE	MODEL	YEAR BUILT	TYPE			FUEL USED			III*
				Narrow Front	Crawler	Wide Front	Gas	L.P.	Diesel	
1										
2										
3										
4										
5										
6										

II. LIST SELF-PROPELLED EQUIPMENT USED (during 2 weeks covered by this study)

	TYPE	MAKE	MODEL	YEAR BUILT	III*
1					
2					
3					

III* ARE ANY OF THE ABOVE TRACTORS OR EQUIPMENT RENTED OR BORROWED?
(indicate by placing an R or B in the appropriate columns in III above)

IV. WHO OPERATED EQUIPMENT?

	FAMILY MEMBERS			FAMILY MEMBERS			HIRED HELP		
	First Name	Relation	Age	First Name	Relation	Age	First Name	Sex	Age
1				4			7		
2				5			8		
3				6			9		

V. DAILY LOG OF MACHINE USE — Begins on_____ through_____.
mo. date mo. date

Day** of Week Date	TRACTOR USED or SELF-PROPELLED MACHINE	WHO USED IT? (first name)	HITCHED TO WHAT MACHINE? (or CROP USED IN)	TOTAL HOURS OF USE	MIN. ON PUBLIC ROAD

** List each day--If machinery is not used that day, draw line through blanks.

emw

Appendix A-2

Machinery Use Log

(Reverse Side)

INSTRUCTIONS: Your cooperation in completing this two week log is appreciated. Your last log entry should be made on ____________________.** Please send this to your County Extension Office as soon after this date as possible.
USE THE POSTAGE FREE ENVELOPE PROVIDED

V. DAILY LOG OF MACHINE USE (continued)

Day** of Week Date	TRACTOR USED OR SELF-PROPELLED MACHINE	WHO USED IT? (first name)	HITCHED TO WHAT MACHINE? (or CROP USED IN)	TOTAL HOURS OF USE	MIN. ON PUBLIC ROAD

**List each day—If machinery is not used that day, draw line through blanks.

APPENDIX A-3

FARM MACHINERY USE STUDY[1]

PROJECT INTERVIEWER'S GUIDELINES

A. GENERAL

1. When do I make farm visits? How many?

You will be assigned 18 dates for making visits. Two-thirds of these dates occur between May and October. On each of these visits, you are scheduled to stop at eight farms.

2. Can I skip any farms on the list?

You will normally contact all farms on the list, including any farm of 10 or more acres from which the annual sale of agricultural products totals $50 or more. (Also include places of less than 10 acres if sales of agricultural products is $250 or more.) You can see that this includes most part-time farmers.

Skip any farm that does not use farm machinery in the production of farm products.

3. What is included as "farm machinery"?

Farm machinery includes all petroleum-powered farm machines used primarily on the farm in relation to some phase of production, handling, or transporting of farm products.

Such things as electric-powered feed conveyors, pickup trucks, or rotary lawn mowers would not classify as farm machinery, for the purposes of this study.

4. In general, what type of information will I be getting from farmers?

a. Basic Information Sheet -- covers general information on the farm and the machinery storage. (Takes two to eight minutes to complete.)

[1] Michigan State University / Ohio State University, January - December 1971.

b. Machinery Use Data Sheet -- includes tractors used, who used them, and how much and when they were used during the past four days. (Takes 10 to 25 minutes to complete.)

You will leave Page 1 of the Machinery Use Study with the farmer, asking him to complete the log for the next 10 days and send it to the County Extension Office in the envelope provided. When he does this, you will have a complete 14-day log on machinery use. You take Page 2 of this form with you when you leave the farm, so if the farmer does not send in anything, you will have the four-day log you filled out to send in.

5. All information is confidential. Do not discuss information obtained from one farmer with another. Interview adults or mature youth who know about machinery use.

6. Your actions will reflect both upon the County Extension Office and the University. Do not promote any private interest or service on any of your visits.

B. PREPARATION FOR VISITS

1. Get a listing of dates* and the farms to be visited on each date from your County Extension Office.

2. Spot each of the 18 samples on a county map and sketch in the area to be covered in each sample.

3. Fill out your "Calendar of Activities"* with the scheduled 18 dates for farm visits.

4. Contact the office secretary at the County Extension Office on Monday, 10 days before the scheduled farm visits, to remind her that the letter of introduction* should be mailed out on Thursday (one week before your visit). Also enter the date to contact the secretary on your calendar.

5. Plan visit strategy

a. Make visits on Thursday (70% of the time or more), but consider a rainy Wednesday or Friday if farmers will likely be available at that time.

b. Start early in the day, especially during the summer. This will vary with season and type of farming, but try to be there at the "right time." A period such as 8 to 10 a.m. or during the noon hour might be a good time to find farmers at home.

* enclosed

6. Be ready to get the information quickly.

   a. Write the name of farmers and their farm number on the basic information sheet before leaving home.

   b. Take your county plat map along, if it is available, and a copy of the letter of introduction sent out by the County Agent.

7. Upon arriving at the farm -- introduce yourself and ask, "Did you get a letter from the County Extension Agent telling you I would be here today?" Ask, "Did you make any notes on your use of machines over the past four days?" "Would you be willing to help us with this project -- it takes about 20 minutes of your time."

   a. If person appears uncooperative, say "thank you" and go on. (After contacting Farm #8, you might stop in at the next farm down the road to replace this one.)

   b. Work towards trying to get the information as efficiently as possible.

C. BASIC INFORMATION SHEET

At the top of this page, the first entry should be the farm number.

The first two digits are the County Numbers
example: Erie County is 2 7

The next two digits are Visit Numbers
example: On February 25, the Erie County interviewer will make his first visit. The first visit number is 0 1.
example: On December 16, the Erie County interviewer will make his last visit. This visit number will be 1 8.

The last digit is Farm Number
example: During visit #1, the interviewer will contact eight farms. The first farm you contact and receive information from is number 1. The eighth farm you contact and receive information from is number 8.

example:

county	visit	farm
2 7	0 1	1

Check the name, address, and telephone number of the farm operator with the information you filled in before you got to the farm.

Check the appropriate box to identify the "PERSON ANSWERING QUESTIONS." If it is someone other than the operator or his wife, indicate after "other" that person's relationship to the operator (i.e., brother, hired hand, etc.).

Now you are ready to begin the 20 questions on this form. For clarity and uniformity, a brief explanation of the key points of each question follow:

1. The operator is the person who is in charge of the farm you are visiting whether or not he owns it. He is the one who makes decisions in all matters concerning the management of that farm.

   Employment off the farm includes any work for which there is some type of reimbursement. If the operator is not employed off the farm, record an "X" in the "No" box and proceed to Question 2. If he is employed off the farm, record an "X" in the "Yes" box and ask the farmer the question immediately below the "Yes" response. More hours employed off the farm means over half of his working time.

2. Check only the one enterprise that is the major source of income. If the farmer cannot designate one response for this question, then record him as General Farming.

3. List acres operated as of the day of the interview.

4. Responses could include: outside, barn, machinery shed, etc.

5. A machinery storage building is any structure built primarily for the purpose of storing machinery. If the respondent answers "Yes" to this question, ask him Questions 5a and b before going to #6. Summarize statements for Question "b" briefly, but try to be complete. (Example: doesn't like door arrangement).

6. Find out whether the farmer thinks a building made primarily for machinery storage is worth the expense on his farm. If he says "Yes," read to him the statement in capital letters preceding Question 7, and continue with #7. If he says "No" skip to Question #19.

7. If he chooses either steel or aluminum, ask if he would like a color coating or have it unfinished. (Note: unfinished includes a galvanized finish.)

8. Framing material means framework (like rafters) that the outside covering is fastened to.

9. If the farmer says "Yes," he would want a shop, ask "Do you want it heated?"

10. Show the roof types and get him to point out his first choice (one only). If he likes something other than those shown, sketch or have him sketch his choice on this sheet.

11. Same directions as in #10. Use the door arrangements shown to indicate modifications.

12. Open sides are sides without doors. Check "none" indicating no open sides for a completely enclosed building.

13. If the farmer is not sure on this question, mark both responses.

14. For a "Yes" response, go to Question 15. On a "No" response, skip to Question 19.

15. The width is the most important dimension. Mark it down even if he doesn't know the length. If he has no idea on either dimension, mark "don't know."

16. Only one response.

17. Check more than one, if the farmer indicates so.

18. Indicate his choices as you read them to him. Ventilators include roof or gable hardware to reduce sweating. Partitions are walls to separate parts of the building. Electrical outlets include all types of electrical service. A service door is a door for people (not machinery). After "other," indicate other features the farmer may be interested in.

19. Possible responses for this question could range from a fruit stand to a dairy barn.

20. If he answers "Yes," read the question under "Yes" and the answers. Make sure you check (✓) two. Then ask him which "one" is least important. Put an "0" in that box.

D. FARM MACHINERY USE STUDY FORM (Fill out farm number box)

1. List Tractors Used (during two weeks covered by this study)

   a. "What tractors were used during the last four days?"

b. "What other tractors will probably be used in the next 10 days?"

c. Include all tractors regardless of size, as long as they are used as a source of power in some relation to the production, handling, or transport of farm products.

d. Example: John Deere 4020, wide front, diesel, built in 1967
Allis Chalmers D-12, wide front, gasoline, built in 1964
Oliver 770, narrow front, gasoline, built in 1963

	Make	Model	Year Built	Type			Fuel Used						
				Narrow Front	Crawler	Wide Front	Gas	LP	Diesel				
1	J.D.	4020	1967			X			X			
2	A.C.	D-12	1964			X	X					
3	Oliver	770	1963	X			X					

Make -- Refers to the maker or manufacturer. Abbreviate as shown below:

A.C. = Allis Chalmers
D.B. = David Brown
Case = J. I. Case
Cat = Caterpillar Tractor
J.D. = John Deere
Ford = Ford Tractor
Farmall or I.H. = International Harvester
M.F. = Massey-Ferguson
M.M. = Minneapolis-Moline
Oliver = Oliver

Model -- A series of numbers, letters, or words to identify a specific tractor.

Year Built -- The year the tractor was manufactured, NOT when it was sold. A good guess on the year built is okay.

Type -- Narrow Front -- A single wheel in front or front wheels closer together than rear wheels.

Crawler -- Uses a track, no wheels
Wide Front -- Front wheels set apart as wide or almost as wide as rear wheels.

Fuel Used -- gas = gasoline
L.P. = liquefied petroleum gas (bottled gas)
diesel = diesel fuel

2. List Self-Propelled Equipment Used.

Equipment such as combines, balers, forage harvesters, or windrowers that are self-powered (not hooked to tractor) are listed in this section. Some common types and makes of self-propelled machines are:

Type	Make
Forage Harvester	Fox, New Idea, Gehl, New Holland
Windrower	Hesston, Owatonna
Baler, Combine	N.I., N.H., A.C., Case, J.D., Ford, I.H., M.F., M.M., Oliver

The Model and Year Built have the same meanings as in the tractor listing.

3. Are Any of the Above Tractors or Equipment Rented or Borrowed?

Ask if any of the tractors or equipment that were listed are rented (leased) or borrowed. If some are, place either an R or B in the appropriate spots in column III*, in sections I and II.

Type	Make	Model	Year Built	III*
1 Combine	J.D.	55	1964	B

A farmer does not have to own tractors or self-propelled equipment to include them in the study. Use can be reported from machinery that is owned, rented (leased), or borrowed, as long as it is operated by a family member or by his hired help. Include custom work a farmer does for others, but do not include custom work that someone else does for the farmer you are interviewing.

If the farmer and his neighbor share labor, and the farmer uses the neighbor's combine, it would be recorded as a borrowed combine. However, if the neighbor operated the combine, you would not record it. The user must be family or hired help in order to be reportable.

4. Who Operated Equipment During the Two Weeks Covered by this Study?

   a. Any person who operated machines listed in the daily log (Section V) must be listed under this section.

   b. Persons who operate equipment are divided into FAMILY MEMBERS and HIRED HELP.

   c. Use the first name only. If two people have the same first initial, also enter their middle initial.

   d. Relation means what relation is this person to the farm operator? Some common relations are: Head (person whom we sent letter to), son, daughter, wife, son-in-law, brother, father, mother, etc.

   e. Age means age on the day you visit. If the person answering does not know exactly, an approximate age will do.

   f. Hired Help -- List their first name, sex (M or F), and age. If there are more than three hired help, use an unused space under family member and place a large H over the number of that space (see example).

FAMILY MEMBERS			FAMILY MEMBERS			HIRED HELP		
First Name	Relation	Age	First Name	Relation	Age	First Name	Sex	Age
1 John	Head	44	4 SAM	Son	15	7 Burt	M	55
2 John Q.	Son	17	5			8 Jim	M	45
3 Mary	Wife	43	(H) Tom	Male	25	9 SARA	F	40

5. Daily Log of Machine Use -- Begins on _____ through _____
   mo. date mo.date

   a. Fill in the first and last day of the log.
   Example -- Henry County on its visit #01 would look like this:

Begins on JAN. 10 (mo. date) through JAN. 23 (mo. date)

Example -- Miami County on its visit #01 would look like this:

Begins on JAN. 24 (mo. date) through FEB. 6 (mo. date)

Be sure to write in both month and date. This can be done before you get to the farm.

b. Fill in a four-day use log, starting with Sunday, if you visit on a Thursday. (Start with Saturday if you visit Wednesday, or Monday for Friday visits, etc.).

Example:

Day** of Week Date	TRACTOR USED or SELF-PROPELLED MACHINE	WHO USED IT? (1st Name)	HITCHED TO WHAT MACHINE? (Or Crop Used in)	TOTAL HOURS OF USE	MIN. ON PUBLIC ROAD
Sun. 1-24	J.D. 4020	John	Forage Wagon	3 1/4	20
Mon. 1-25					

**List each day -- If machinery is not used that day, draw line through blanks to tell us that machinery was not used.

Day of Week -- Sun., Mon., Tues., Wed., Thurs., Fri., Sat.
Date -- List month by number and date such as 1-24.
Use another blank every time the tractor is hitched to something else or there is a change in operators.

Tractor Used or Self-Propelled Machine -- These should be listed in Sections I (tractors) and II (S.P. Equipment).

Who Used It? (first name) -- Persons should be listed in Section IV (who operated equipment).

Hitched to What Machine (or Crop Used In) -- See list of implements. Be specific. -- Only with self-propelled equipment.

Total Hours Of Use -- List hours to the nearest 1/4 hour.

Min. on Public Road -- Of the total hours of use, how many minutes were spent on the public road?

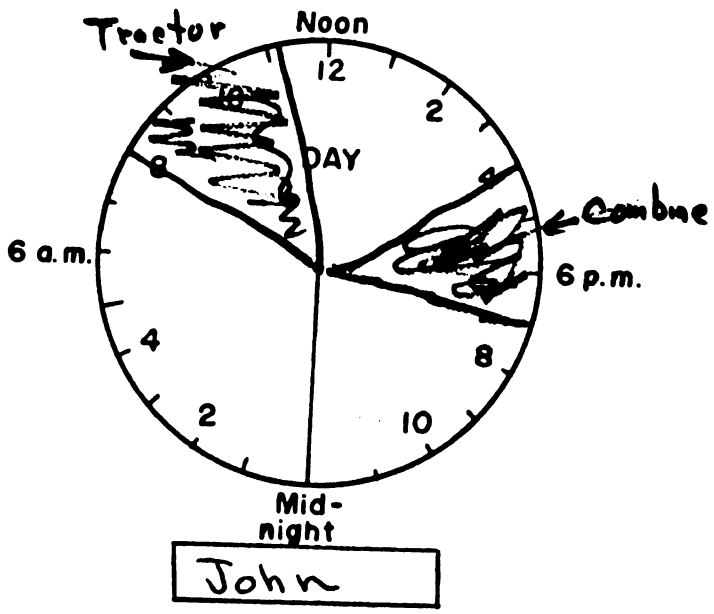
6. One-Day Machine Operation Clock

   a. At this point in the interview, tear the two sheets of Machinery Use Study apart. You will then be able to write on the back of the second sheet, which has the clocks displayed.

   b. Write in the most recent day that machinery was used.
   Example: Day used Wed., July 14

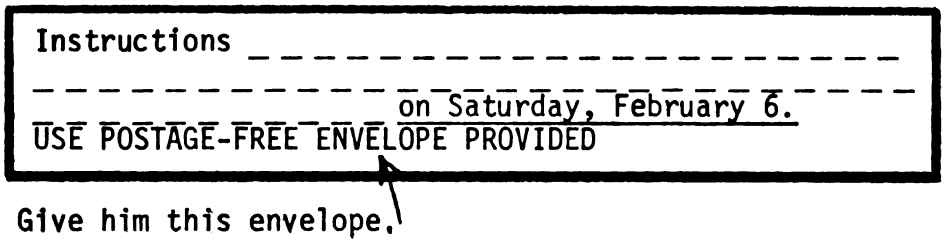
   c. Fill in the names of operators who used machinery on this day in each of the designated boxes.

   d. Using Part V as a guide, ask "During what time of the day did you (John) use machinery on Wednesday?" If the farmer replies, "From 8 a.m. to 11:15 a.m., I mowed hay and from 4 p.m. to 7 p.m. I combined wheat," fill out the clock as illustrated below. Write in what power unit was used, if more than one was operated on that day.



   e. Repeat for each operator who used machinery on Wednesday.

E. HAND THE FARMER PAGE 1 OF THE MACHINERY USE LOG ON WHICH YOU HAVE RECORDED 4 DAYS OF MACHINE USE. Ask him to continue the log for the next 10 days. Show him the back of the sheet and point out the date of the last log entry (see sample).



Give him this envelope.

F. FOLLOW-UP

1. Four days after the scheduled date of the last log entry, check with the County Extension Office to see if returns are in. If they are not, it may be to your advantage to call the farmer and ask whether he has filled out the 10-day log you asked him for. Encourage him to respond. In exceptional cases, a follow-up visit may be justified to help complete this log.

2. When you receive the returns from the farmer, look them through to verify results. Check to see that the date columns are filled out and that the description of "machinery hitched to" is specific. You may wish to make a telephone call to fill in information gaps.

G. SENDING DATA AND INVOICE TO MSU

1. When should I send in the results?

Two weeks after each visit, check with the County Extension Office for returns. If 6 or more returns were received, put with your information on each farm and send them in. If less than six returns are in, it may pay you to check with the farmer and encourage him to complete the log and send it to the Extension Office. Try to send data to MSU within three weeks after your visit.

2. How do I get paid?

Complete the "Invoice For Machinery Use Data" which is found in each 10" x 15" envelope and send it in with the results. This will be used to determine your payment.

If you send in 6 or more complete 14-day logs, you will receive $40. If you send in less than 6 complete 14-day logs, you will receive $6 for each complete log, plus $3 for each incomplete log. (A minimum of $25 is guaranteed, providing you send in data from 6 farms or more.) We anticipate you should range between $33 and $40 for each group of data, providing you contact all 8 farms on the list.

You might make a note on your calendar of the amount due for each set of data you send in. It will normally take between 2 to 4 weeks to receive your check.

You will receive the $100 bonus along with the payment for your last set of data (providing you have sent data from 6 or more farms for each of the 18 scheduled visit dates).

3. What about excessive expenses in collecting data?

If you must travel over 70 miles to interview farmers on any visitation date, you will be reimbursed for the extra miles. Simply note miles traveled on the invoice.

If you must spend over $2 for long-distance phone calls on an 8-farm sample to follow up and encourage completion of the 14-day machinery use logs, you will be reimbursed for the extra cost.

There is a $10 maximum for extra costs for each of the 18 samples. In most cases, excessive expenses will not be required unless you are covering two or three counties or have an occasional difficulty in getting the farmers to send in completed logs of machinery use.

H. EMERGENCY HELP

1. In most cases, you will be able to iron out questions by discussing them with your County Extension Agent, but do not hesitate to ask us any questions. We will also have an "irregular" newsletter to interviewers and we use a question-and-answer section. The answer to your question will be of interest to other project interviewers.

2. If you have an urgent problem that requires our immediate attention, call collect to Howard Doss or Richard Pfister, Area 517, 355-4720.

APPENDIX A-4

FARM MACHINERY USE STUDY

Supplement A: Machines and Equipment Hitched to Tractors

Instructions: When filling out the Machinery Use Log, please refer to the following list of equipment when answering the question "Hitched to What Machine?" Be specific.

PLANTING AND TILLAGE EQUIPMENT

1. Plow
2. Disk
3. Drag
4. Land Leveler
5. Planter (corn, beans, beets)
6. Grain Drill
7. Row-Crop Cultivator
8. Field Cultivator
9. Rotary Hoe

FERTILIZER AND CHEMICAL APPLICATION EQUIPMENT

10. Manure Spreader
11. Boom Sprayer
12. Air Carrier Sprayer
13. Bulk Fertilizer Spreader
14. Anhydrous Ammonia Applicator
15. Crop Duster

STATIONARY EQUIPMENT

16. Forage Blower
17. Feed Grinder
18. Grinder - Mixer
19. Elevator
20. Generator
21. Irrigation Pump
22. Manure Pump

MATERIALS HANDLING EQUIPMENT

23. Wagon -- Flat bed
24. Wagon -- Gravity
25. Wagon -- Forage (Mechanical self-unloading)
26. Front-End Loader (Bucket, Tines)
27. Fork Lift
28. Blade

HARVESTING EQUIPMENT

29. Sickle-Bar Mower
30. Mower-Conditioner
31. Hay Conditioner
32. Side Delivery Rake
33. Hay Baler
34. Combine, Pull Type
35. Corn Picker
36. Forage Harvester (flywheel, flail, and cylinder type)
37. Potato Digger
38. Sugar Beet Harvester
39. Rotary Mower
40. Cherry Harvester
41. Cucumber Harvester
42. Pea Harvester

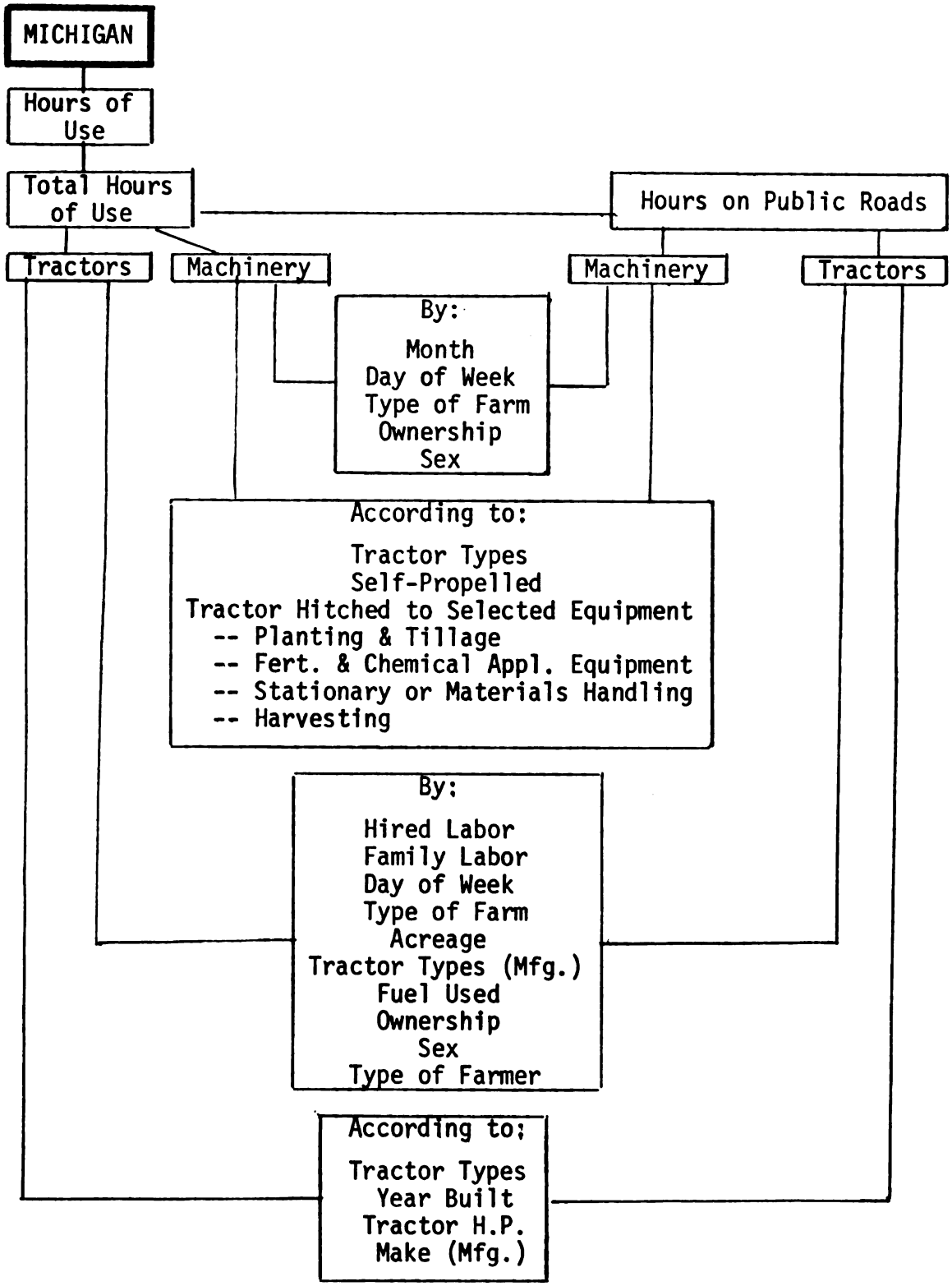
VISITING DAY		01	02	03	04	05	06	07	08	09	10
January	7	1								9	
	14		2								10
	21			3							
	28				4						
February	4					5					
	11						6				
	18							7			
	25								8		
March	4	1									
	11						6				10
	18			3				7			
	25				4				8		
April	1	1					6				
	8		2					7			
	15			3					8		
	22				4	5				9	
	29		2			5				9	10
May	6	1		3		5		7		9	
	13		2		4		6		8		10
	20	1		3		5		7		9	
	27		2		4		6		8		10
June	3	1		3		5		7		9	
	10		2		4		6		8		10
	17	1		3		5		7		9	
	24		2		4		6		8		10
July	1	1		3		5		7		9	
	8		2		4		6		8		10
	15	1		3		5		7		9	
	22		2		4		6		8		10
	29	1		3		5		7		9	
August	5		2		4		6		8		10
	12	1		3		5		7		9	
	19		2		4		6		8		10
	26	1		3		5		7		9	
September	2		2		4		6		8		10
	9	1		3		5		7		9	
	16		2		4		6		8		10
	23	1		3		5		7		9	
	30		2		4		6		8		10
October	7	1		3		5		7		9	
	14		2		4		6		8		10
	21	1		3		5		7		9	
	28		2		4		6		8		10
November	4	1				5				9	
	11		2				6				10
	18			3				7			
	25				4				8		
December	2	1					6				
	9		2					7			
	16			3					8		
	23				4					9	
	30					5					10

APPENDIX A-5. Interviewer's Schedule

APPENDIX B

MICHIGAN

Key to Computer-Printed Output



MICHIGAN

Total Hours of Tractor Use

TOTAL HOURS OF USE (IN THOUSANDS)
PER YEAR OF TYPE OF TRACTORS IN MICHIGAN
BY HIRED LABOR

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO YEAR BUILT IN MICHIGAN
BY HIRED LABOR

AGE + SEX OF OPERATR	TRACTOR TYPES: NARROW FRONT	CRAWLER	WIDE FRONT	ALL	TRACTORS ACCORDING TO YEAR BUILT: 1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
MALE												
5-14	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
15-24	937.	15.	3229.	4233.	143.	35.	80.	411.	361.	377.	1962.	344.
25-44	1075.	133.	3659.	4175.	153.	44.	140.	459.	637.	752.	1705.	256.
45-64	765.	0.	1388.	2156.	48.	2.	64.	443.	210.	472.	359.	41.
65-OVER	24.	6.	458.	516.	0.	11.	0.	6.	64.	65.	372.	0.
ALL AGES	3156.	151.	7770.	11077.	374.	92.	284.	1320.	1292.	2166.	4907.	641.
FEMALE												
5-14	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
15-24	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
25-44	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
45-64	23.	0.	13.	35.	0.	0.	0.	0.	23.	0.	13.	0.
64-OVER	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ALL AGES	23.	0.	13.	36.	0.	0.	0.	0.	23.	0.	13.	0.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO FIEI HP CLASSES IN MICHIGAN
BY HIRED LABOR

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO MAKE IN MICHIGAN
BY HIRED LABOR

AGE + SEX OF OPERATR	TRACTOR H.P. CLASSES: 0 TO 39	40 TO 59	60 TO 99	100 AND OVER	TRACTORS ACCORDING TO MAKE: ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
MALE													
5-14	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
15-24	710.	1456.	1911.	74.	283.	414.	600.	345.	2537.	226.	107.	234.	17.
25-44	2110.	1170.	1670.	85.	247.	229.	495.	399.	1642.	479.	69.	471.	140.
45-64	723.	641.	427.	0.	225.	104.	750.	171.	551.	16.	188.	134.	0.
65-OVER	170.	254.	65.	0.	52.	0.	11.	157.	13.	273.	0.	6.	1.
ALL AGES	2704.	3721.	4076.	160.	607.	747.	1859.	1071.	4243.	1001.	365.	316.	158.
FEMALE													
5-14	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
15-24	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
25-44	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
45-64	23.	13.	0.	0.	0.	0.	36.	0.	0.	0.	0.	0.	0.
64-OVER	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ALL AGES	23.	13.	0.	0.	0.	0.	35.	0.	0.	0.	0.	0.	0.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF TYPE OF TRACTORS IN MICHIGAN BY FAMILY LABOR

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO YEAR BUILT IN MICHIGAN BY FAMILY LABOR

AGE + SEX OF OPERATR	TRACTOR TYPES: NARROW FRONT	CRAWLER	WIDE FRONT	ALL	TRACTORS ACCORDING TO YEAR BUILT: 1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
MALE												
5-14	779.	0.	1453.	2232.	21.	48.	184.	479.	351.	431.	652.	57.
15-24	25[illegible]2.	27.	7251.	975[illegible].	61.	289.	414.	504.	1119.	1946.	4325.	812.
25-44	5454.	507.	13318.	19[illegible]9.	552.	337.	371.	2149.	2759.	4645.	6137.	1518.
45-64	9335.	372.	14332.	24097.	501.	895.	2042.	3483.	4136.	4595.	7074.	1546.
65-OVER	1189.	11.	1376.	2576.	27.	132.	103.	474.	721.	690.	398.	33.
ALL AGES	19347.	913.	37430.	57695.	1162.	1703.	3318.	7301.	8976.	12203.	18647.	4267.
FEMALE												
5-14	19.	0.	183.	202.	0.	0.	18.	32.	2.	3.	136.	11.
15-24	155.	23.	294.	472.	0.	13.	21.	130.	72.	121.	113.	0.
25-44	243.	0.	695.	938.	38.	0.	15.	66.	127.	154.	454.	105.
45-64	150.	0.	577.	727.	13.	4.	29.	142.	10.	95.	236.	199.
64-OVER	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ALL AGES	616.	23.	1749.	2386.	51.	17.	83.	371.	210.	403.	936.	315.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO FILE HP CLASSES IN MICHIGAN BY FAMILY LABOR

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO MAKE IN MICHIGAN BY FAMILY LABOR

AGE + SEX OF OPERATR	TRACTOR H.P. CLASSES: 9 TO 39	40 TO 59	60 TO 99	100 AND OVER	TRACTORS ACCORDING TO MAKE: ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
MALE													
5-14	11[illegible].	58[illegible].	798.	0.	126.	328.	535.	193.	580.	211.	67.	129.	5.
15-24	2307.	8830.	3515.	136.	1053.	726.	1271.	712.	5527.	[illegible].	441.	637.	193.
25-44	4684.	5143.	7822.	469.	1523.	1512.	3875.	1119.	7136.	1170.	925.	1459.	283.
45-64	9113.	675[illegible].	6441.	583.	2087.	2075.	7364.	998.	6789.	1232.	1030.	2194.	337.
65-OVER	943.	1154.	413.	0.	240.	135.	920.	185.	736.	153.	29.	72.	45.
ALL AGES	17683.	19130.	1776[illegible].	1190.	5019.	4771.	14675.	3207.	13583.	3552.	2492.	4491.	923.
FEMALE													
5-14	119.	25.	79.	0.	6.	10.	18.	2.	140.	21.	0.	5.	0.
15-24	225.	113.	109.	0.	29.	110.	138.	67.	122.	0.	0.	7.	2.
25-44	243.	350.	372.	0.	92.	81.	259.	19.	374.	81.	44.	12.	40.
45-64	151.	151.	242.	0.	94.	91.	121.	176.	206.	6.	0.	15.	23.
64-OVER	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ALL AGES	739.	540.	761.	0.	132.	291.	543.	266.	543.	109.	44.	42.	55.

TOTAL HOURS OF USE (IN THOUSANDS)
PER YEAR OF TYPE OF TRACTORS IN MICHIGAN
BY DAY OF WEEK

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO YEAR BUILT IN MICHIGAN
BY DAY OF WEEK

DAY OF WEEK	TRACTOR TYPES: NARROW FRONT	CRAWLER	WIDE FRONT	ALL	TRACTORS ACCORDING TO YEAR BUILT: 1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
SUNDAY	1472.	55.	2509.	4036.	214.	115.	222.	685.	588.	651.	1164.	372.
MONDAY	3958.	231.	8923.	13082.	433.	270.	739.	1707.	1721.	2829.	4534.	860.
TUESDAY	3730.	149.	8272.	12251.	366.	240.	616.	1446.	1661.	2624.	4393.	854.
WEDNESDAY	3433.	131.	7911.	11475.	322.	296.	535.	1381.	1365.	2454.	4257.	664.
THURSDAY	3875.	154.	7921.	11950.	350.	348.	540.	1545.	1721.	2535.	3833.	938.
FRIDAY	4113.	186.	8519.	12824.	415.	380.	593.	1621.	2033.	2820.	4118.	935.
SATURDAY	4038.	173.	7573.	11784.	239.	295.	650.	1450.	1990.	2261.	4045.	823.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO FIELD HP CLASSES IN MICHIGAN
BY DAY OF WEEK

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO MAKE IN MICHIGAN
BY DAY OF WEEK

DAY OF WEEK	TRACTOR H.P. CLASSES: 5 TO 39	40 TO 59	60 TO 99	100 AND OVER	TRACTORS ACCORDING TO MAKE: ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
SUNDAY	1523.	1134.	911.	104.	354.	345.	355.	440.	1177.	347.	212.	133.	136.
MONDAY	4221.	4018.	3637.	234.	1081.	1276.	3221.	913.	4695.	979.	519.	540.	152.
TUESDAY	3807.	4009.	3646.	242.	1088.	1293.	2839.	805.	3857.	849.	426.	350.	155.
WEDNESDAY	3293.	3561.	3538.	252.	664.	1121.	2640.	555.	3540.	817.	561.	651.	165.
THURSDAY	3737.	3794.	3551.	190.	895.	1165.	2747.	578.	3895.	816.	452.	974.	154.
FRIDAY	3874.	4151.	4067.	205.	1035.	1026.	2953.	904.	4422.	600.	452.	553.	229.
SATURDAY	3498.	3667.	3534.	303.	534.	913.	2311.	907.	3914.	779.	419.	329.	230.

TOTAL HOURS OF USE (IN THOUSANDS)
PER YEAR OF TYPE OF TRACTORS IN MICHIGAN
BY TYPE OF FARM

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO YEAR BUILT IN MICHIGAN
BY TYPE OF FARM

TYPE OF FARM	TRACTOR TYPES: NARROW FRONT	CRAWLER	WIDE FRONT	ALL	TRACTORS ACCORDING TO YEAR BUILT: 1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
CASH CROP	5124.	557.	13442.	19134.	646.	680.	1006.	2317.	3603.	3675.	5552.	1450.
DAIRY	10155.	236.	16063.	26459.	463.	507.	1229.	3283.	3229.	6386.	10098.	2682.
LIVESTOCK	4735.	55.	6127.	10917.	505.	490.	717.	1954.	1546.	1895.	3237.	303.
FRUIT	311.	74.	5245.	5630.	116.	0.	237.	490.	494.	1113.	2611.	403.
GENERAL	2103.	99.	4175.	6377.	132.	66.	339.	1342.	939.	1323.	2113.	313.
MULTIPLE	2300.	67.	4271.	6638.	321.	184.	434.	714.	613.	1359.	2547.	490.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO PTO HP CLASSES IN MICHIGAN
BY TYPE OF FARM

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO MAKE IN MICHIGAN
BY TYPE OF FARM

TYPE OF FARM	TRACTOR H.P. CLASSES: 9 TO 39	40 TO 59	60 TO 99	100 AND OVER	TRACTORS ACCORDING TO MAKE: ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
CASH CROP	5471.	4376.	7363.	612.	1003.	1246.	6263.	346.	7031.	692.	661.	1165.	208.
DAIRY	6199.	9385.	9121.	530.	2353.	2565.	5606.	1970.	9474.	2035.	1396.	2590.	469.
LIVESTOCK	3923.	3279.	2612.	121.	1240.	1092.	2394.	692.	3251.	555.	714.	435.	363.
FRUIT	1215.	2731.	234.	0.	62.	1492.	475.	1057.	1464.	944.	0.	43.	54.
GENERAL	2159.	1982.	1796.	71.	919.	370.	1337.	420.	1516.	762.	299.	263.	17.
MULTIPLE	1722.	2526.	1926.	65.	721.	295.	1520.	495.	1972.	346.	53.	1169.	83.

TOTAL HOURS OF USE (IN THOUSANDS)
PER YEAR OF TYPE OF TRACTORS IN MICHIGAN
BY ACREAGE

BY ACREAGE	NARROW FRONT	CRAWLER	WIDE FRONT	ALL
	TRACTOR TYPES			
BELOW-50	356.	32.	962.	1350.
50-99	2553.	132.	3912.	6567.
100-199	5286.	373.	12206.	17368.
200-499	11910.	541.	21634.	34232.
500-999	3962.	55.	10197.	14245.
1000-ABOVE	595.	22.	1858.	2474.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO YEAR BUILT IN MICHIGAN
BY ACREAGE

BY ACREAGE	1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
	TRACTORS ACCORDING TO YEAR BUILT							
BELOW-50	52.	107.	353.	156.	298.	222.	137.	25.
50-99	141.	359.	713.	1405.	1076.	1209.	1474.	196.
100-199	740.	526.	990.	2796.	3083.	3583.	5510.	534.
200-499	1013.	777.	1667.	4254.	5155.	7564.	10825.	2739.
500-999	65.	157.	289.	1059.	1547.	3229.	6278.	1583.
1000-ABOVE	35.	0.	0.	38.	208.	191.	1826.	182.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO FIEI HP CLASSES IN MICHIGAN
BY ACREAGE

BY ACREAGE	5 TO 39	40 TO 59	60 TO 99	100 AND OVER
	TRACTOR H.P. CLASSES			
BELOW-50	959.	255.	37.	0.
50-99	3635.	1915.	313.	5.
100-199	7343.	5066.	3162.	86.
200-499	9193.	12202.	19636.	337.
500-999	2353.	3534.	7093.	672.
1000-ABOVE	19.	579.	1472.	327.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO MAKE IN MICHIGAN
BY ACREAGE

BY ACREAGE	ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
	TRACTORS ACCORDING TO MAKE								
BELOW-50	135.	179.	253.	71.	232.	350.	94.	16.	15.
50-99	714.	456.	1354.	918.	1345.	677.	152.	253.	149.
100-199	1539.	2325.	4355.	1312.	5080.	1694.	145.	816.	603.
200-499	2559.	3485.	4057.	2331.	13606.	2046.	1702.	2951.	358.
500-999	1274.	526.	2721.	935.	6031.	267.	836.	1493.	101.
1000-ABOVE	49.	77.	904.	0.	1217.	133.	94.	0.	0.

TOTAL HOURS OF USE (IN THOUSANDS)
PER YEAR OF TYPE OF TRACTORS IN MICHIGAN
BY TRACTOR TYPES

TRACTOR TYPES

TRACTOR TYPES	NARROW FRONT	CRAWLER	WIDE FRONT	ALL
ALLIS-CHAL	1583.	251.	4467.	6301.
FORD	419.	0.	5699.	7068.
I. H.	8015.	223.	10063.	18297.
J. I. CASE	920.	67.	4694.	5681.
JOHN DEERE	9144.	325.	15354.	24824.
MASEY FREG	309.	0.	5126.	5435.
MIN MOLINE	1109.	0.	1974.	3083.
OLIVER	2803.	172.	2626.	5597.
OTHERS	510.	104.	611.	1225.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO YEAR BUILT IN MICHIGAN
BY TRACTOR TYPES

TRACTORS ACCORDING TO YEAR BUILT

TRACTOR TYPES	1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
ALLIS-CHAL	264.	36.	341.	1049.	930.	1616.	1520.	525.
FORD	164.	102.	567.	1410.	1011.	1622.	1653.	520.
I. H.	734.	1053.	1476.	3161.	3504.	2384.	4942.	517.
J. I. CASE	66.	150.	162.	270.	627.	1047.	2383.	472.
JOHN DEERE	450.	483.	796.	1556.	2874.	5792.	10602.	2270.
MASEY FREG	191.	39.	231.	341.	1127.	1399.	1341.	717.
MIN MOLINE	172.	0.	67.	778.	110.	636.	1001.	320.
OLIVER	146.	35.	204.	942.	1077.	1127.	1760.	306.
OTHERS	118.	0.	118.	303.	100.	0.	588.	0.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO FIEI HP CLASSES IN MICHIGAN
BY TRACTOR TYPES

TRACTOR H.P. CLASSES

TRACTOR TYPES	0 TO 39	40 TO 59	60 TO 99	100 AND OVER
ALLIS-CHAL	1767.	2694.	1664.	133.
FORD	3354.	1577.	1021.	133.
I. H.	5111.	8140.	3952.	302.
J. I. CASE	2131.	2336.	499.	17.
JOHN DEERE	5716.	5960.	12424.	433.
MASEY FREG	2464.	1591.	649.	136.
MIN MOLINE	751.	728.	1118.	229.
OLIVER	2152.	1359.	1961.	90.
OTHERS	312.	354.	34.	0.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO MAKE IN MICHIGAN
BY TRACTOR TYPES

TRACTORS ACCORDING TO MAKE

TRACTOR TYPES	ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
ALLIS-CHAL	6301.	0.	0.	0.	0.	0.	0.	0.	0.
FORD	0.	7068.	0.	0.	0.	0.	0.	0.	0.
I. H.	0.	0.	18297.	0.	0.	0.	0.	0.	0.
J. I. CASE	0.	0.	0.	5681.	0.	0.	0.	0.	0.
JOHN DEERE	0.	0.	0.	0.	24824.	0.	0.	0.	0.
MASEY FREG	0.	0.	0.	0.	0.	5435.	0.	0.	0.
MIN MOLINE	0.	0.	0.	0.	0.	0.	3083.	0.	0.
OLIVER	0.	0.	0.	0.	0.	0.	0.	5597.	0.
OTHERS	0.	0.	0.	0.	0.	0.	0.	0.	1225.

TOTAL HOURS OF USE (IN THOUSANDS)
PER YEAR OF TYPE OF TRACTORS IN MICHIGAN
BY FUEL USED

FUEL USED	TRACTOR TYPES: NARROW FRONT	CRAWLER	WIDE FRONT	ALL
GASOLINE	18973.	554.	26961.	46488.
L.P.G.	423.	0.	312.	735.
DIESEL	5363.	533.	24236.	30202.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO YEAR BUILT IN MICHIGAN
BY FUEL USED

FUEL USED	TRACTORS ACCORDING TO YEAR BUILT: 1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
GASOLINE	1130.	1915.	3949.	9204.	9649.	9408.	10036.	1158.
L.P.G.	25.	0.	0.	87.	136.	108.	355.	24.
DIESEL	1176.	11.	64.	515.	1546.	6593.	15333.	4465.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO FIEI HP CLASSES IN MICHIGAN
BY FUEL USED

FUEL USED	TRACTOR H.P. CLASSES: 8 TO 39	40 TO 59	60 TO 99	100 AND OVER
GASOLINE	20665.	15378.	7079.	57.
L.P.G.	41.	412.	267.	0.
DIESEL	2691.	8555.	15710.	1471.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO MAKE IN MICHIGAN
BY FUEL USED

FUEL USED	TRACTORS ACCORDING TO MAKE: ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
GASOLINE	4824.	4788.	13287.	1911.	12220.	2978.	1990.	3756.	745.
L.P.G.	25.	0.	284.	21.	43.	0.	304.	58.	0.
DIESEL	1452.	2251.	4698.	3744.	12549.	2457.	768.	1783.	479.

TOTAL HOURS OF USE (IN THOUSANDS)
PER YEAR OF TYPE OF TRACTORS IN MICHIGAN
BY OWNERSHIP.

	TRACTOR TYPES				TRACTORS ACCORDING TO YEAR BUILT							
OWNERSHIP	NARROW FRONT	CRAWLER	WIDE FRONT	ALL	1936-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
OWNED	24631.	1136.	50963.	76751.	2298.	1926.	3913.	9690.	11336.	16013.	26054.	5520.
RENTED	66.	0.	317.	382.	38.	0.	99.	68.	0.	50.	107.	0.
BORROWED	103.	0.	200.	303.	0.	0.	0.	46.	20.	57.	50.	128.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO YEAR BUILT IN MICHIGAN
BY OWNERSHIP

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO FIELD HP CLASSES IN MICHIGAN
BY OWNERSHIP

	TRACTOR H.P. CLASSES				TRACTORS ACCORDING TO MAKE								
OWNERSHIP	0 TO 39	40 TO 59	60 TO 99	100 AND OVER	ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
OWNED	20936.	24092.	23023.	1528.	6257.	7041.	17936.	5465.	24747.	5369.	3043.	5597.	1225.
RENTED	100.	194.	0.	0.	0.	27.	188.	64.	0.	63.	40.	0.	0.
BORROWED	111.	76.	59.	0.	25.	0.	48.	150.	77.	3.	0.	0.	0.

TOTAL HOURS OF USE (IN THOUSANDS)
PER YEAR OF TYPE OF TRACTORS IN MICHIGAN
BY SEX

	TRACTOR TYPES				TRACTORS ACCORDING TO YEAR BUILT							
SEX	NARROW FRONT	CRAWLER	WIDE FRONT	ALL	1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
MALE	23494.	1034.	48385.	72853.	2122.	1033.	3853.	9272.	10620.	15121.	24860.	5272.
FEMALE	1305.	52.	3199.	4556.	222.	93.	159.	534.	741.	1000.	1432.	376.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO YEAR BUILT IN MICHIGAN
BY SEX

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO FIEI HP CLASSES IN MICHIGAN
BY SEX

	TRACTOR H.P. CLASSES				TRACTORS ACCORDING TO MAKE								
SEX	0 TO 39	40 TO 59	60 TO 99	100 AND OVER	ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
MALE	22431.	23207.	22096.	1351.	6029.	6601.	17088.	5085.	23497.	5117.	2930.	5461.	1145.
FEMALE	1317.	1649.	986.	178.	271.	466.	1208.	596.	1326.	318.	153.	137.	80.

TOTAL HOURS OF USE (IN THOUSANDS)
PER YEAR OF TYPE OF TRACTORS IN MICHIGAN
BY TIME SPENT WORKING ON FARM

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO YEAR BUILT IN MICHIGAN
BY TIME SPENT WORKING ON FARM

TYPE OF FARMER	TRACTOR TYPES: NARROW FRONT	CRAWLER	WIDE FRONT	ALL	TRACTORS ACCORDING TO YEAR BUILT: 1936-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
FULL TIME	21788.	846.	47680.	70314.	1932.	1604.	3233.	8418.	10112.	15427.	24072.	5516.
PART TIME	3000.	301.	3894.	7195.	412.	322.	779.	1388.	1249.	694.	2220.	132.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO FIELD HP CLASSES IN MICHIGAN
BY TIME SPENT WORKING ON FARM

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO MAKE IN MICHIGAN
BY TIME SPENT WORKING ON FARM

TYPE OF FARMER	TRACTOR H.P. CLASSES: 0 TO 39	40 TO 59	60 TO 99	100 AND OVER	TRACTORS ACCORDING TO MAKE: ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
FULL TIME	25519.	21357.	22067.	1428.	5473.	6559.	15837.	5049.	23276.	4887.	2911.	5209.	1113.
PART TIME	2935.	2899.	895.	133.	827.	566.	2453.	632.	1548.	549.	172.	388.	112.

MICHIGAN

Total Hours of Farm Machinery Use

TOTAL HOURS OF USE IN THOUSANDS
PER YEAR IN MICHIGAN BY MONTH

TRACTORS HITCHED TO

MONTH	TRACTORS: NARROW	CRAWLER	WIDE	ALL TRACTORS	SELF-PROPELLED EQUIPMENT: COMBINES CORN	COMBINES GRAIN	MOWER COND.	ALL SP-EQ	ALL SP-EQ + TRAC	PLANTING + TILLAGE EQUIP: PLOWS	PLANTERS	ALL P+T EQUIP	FERT + CHEMICAL APPL EQUIP: MANURE SPROR	ANHYDR AMMO APPL	BOOM SPRAY	ALL F+C EQUIP
JAN.	622.	0.	1172.	1794.	19.	0.	0.	19.	1813.	2.	0.	2.	733.	0.	0.	733.
FEB.	946.	0.	487.	1433.	0.	0.	0.	0.	1433.	0.	0.	0.	515.	0.	0.	515.
MARCH	1077.	0.	1714.	2791.	0.	0.	0.	0.	2791.	0.	21.	21.	1061.	4.	0.	1065.
APRIL	2461.	329.	6276.	9066.	0.	0.	0.	0.	9066.	1743.	533.	2276.	1349.	0.	135.	1484.
MAY	2792.	51.	7194.	10037.	0.	0.	0.	0.	10037.	1797.	1734.	3531.	619.	103.	472.	1194.
JUNE	3906.	197.	6843.	10946.	0.	0.	0.	0.	10946.	285.	602.	887.	361.	429.	696.	1486.
JULY	2307.	7.	4443.	6756.	0.	393.	0.	616.	7373.	279.	26.	306.	346.	95.	129.	571.
AUG.	1665.	27.	3949.	5641.	0.	88.	0.	155.	5196.	292.	115.	407.	271.	0.	144.	415.
SEPT.	1760.	64.	4648.	6472.	0.	0.	0.	394.	6866.	139.	285.	427.	135.	0.	99.	234.
OCT.	2165.	266.	4492.	6923.	816.	0.	0.	1062.	7984.	430.	60.	490.	209.	0.	0.	209.
NOV.	1093.	17.	2504.	3614.	33.	0.	0.	49.	3663.	492.	0.	492.	509.	0.	0.	509.
DEC.	1011.	0.	1336.	2347.	0.	0.	0.	145.	2491.	109.	0.	109.	654.	0.	0.	654.
TOTAL	21032.	956.	44565.	67157.	871.	480.	0.	2440.	69597.	5565.	3385.	8950.	6641.	631.	1674.	9146.

TRACTORS HITCHED TO

MONTH	STATIONARY OR MATERIALS HANDLING EQUIPMENT: FORAGE BLWRS	ELEVA TORS	FORAGE WAGONS	ALL WAGONS	FR-END LOADER	BLADE SCRAPER	CHAIN SAW	ALL S M EQUIP	HARVESTING EQUIPMENT: BALER	MOWER COND.	CORN PICKER	FORAGE HARVTER	ROTARY MOWERS	ALL HARVTNG
JAN.	1.	0.	15.	123.	453.	178.	0.	754.	0.	0.	0.	0.	0.	0.
FEB.	0.	0.	0.	75.	279.	172.	0.	527.	0.	0.	133.	0.	0.	133.
MARCH	0.	6.	23.	204.	631.	160.	0.	999.	0.	0.	39.	0.	17.	55.
APRIL	9.	0.	69.	263.	687.	135.	0.	1079.	0.	0.	0.	127.	8.	135.
MAY	13.	0.	43.	303.	446.	192.	0.	945.	9.	0.	24.	8.	185.	226.
JUNE	137.	28.	331.	534.	371.	19.	0.	1160.	469.	220.	0.	439.	114.	1261.
JULY	53.	71.	177.	331.	275.	56.	0.	1279.	727.	209.	0.	137.	78.	1151.
AUG.	77.	12.	175.	606.	236.	74.	0.	1027.	435.	167.	12.	341.	36.	991.
SEPT.	677.	11.	902.	1449.	171.	128.	0.	2437.	80.	11.	97.	1149.	47.	1383.
OCT.	293.	104.	117.	1486.	363.	198.	0.	2250.	23.	0.	932.	618.	218.	1791.
NOV.	63.	5.	35.	353.	488.	90.	0.	1013.	0.	0.	755.	9.	90.	853.
DEC.	0.	9.	0.	524.	287.	97.	0.	908.	0.	0.	344.	0.	0.	344.
TOTAL	1226.	255.	1946.	5835.	4663.	1385.	0.	14376.	1763.	607.	2339.	2323.	733.	8319.

TOTAL HOURS OF USE IN THOUSANDS
PER YEAR IN MICHIGAN BY DAY OF WEEK

DAY OF WEEK	TRACTORS				SELF-PROPELLED EQUIPMENT				ALL SP-EQ + TRAC	TRACTORS HITCHED TO PLANTING + TILLAGE EQUIP			FERT + CHEMICAL APPL EQUIP ANHYDR			
	NARROW	CRAWLER	WIDE	ALL TRACTORS	COMBINES CORN	COMBINES GRAIN	MOWER COND.	ALL SP-EQ		PLOWS	PLANTERS	ALL P+T EQUIP	MANURE SPADR	AMMO APPL	BOOM SPRAY	ALL F+C EQUIP
SUNDAY	1852.	95.	2454.	3802.	78.	36.	6.	143.	4045.	208.	198.	406.	551.	30.	54.	635.
MONDAY	2634.	90.	5746.	8671.	136.	62.	0.	295.	8970.	869.	228.	1097.	927.	77.	214.	1218.
TUESDAY	3682.	169.	6656.	9907.	161.	49.	0.	349.	10256.	788.	419.	1208.	952.	98.	206.	1256.
WEDNESDAY	3216.	131.	7213.	10561.	143.	97.	0.	436.	10986.	769.	387.	1156.	1073.	83.	233.	1389.
THURSDAY	3745.	145.	7667.	11557.	104.	76.	0.	364.	11920.	966.	668.	1634.	1126.	104.	263.	1493.
FRIDAY	3839.	186.	8060.	12085.	108.	114.	0.	453.	12538.	1044.	773.	1817.	1139.	115.	398.	1652.
SATURDAY	3729.	149.	7641.	10919.	146.	56.	0.	412.	11331.	964.	753.	1716.	1219.	130.	341.	1589.

TRACTORS HITCHED TO

DAY OF WEEK	STATIONARY OR MATERIALS HANDLING EQUIPMENT								HARVESTING EQUIPMENT					
	FORAGE BLWRS	ELEVA-TORS	FORAGE WAGONS	ALL WAGONS	FR-END LOADER	BLADE SCRAPER	CHAIN SAW	ALL S M EQUIP	BALER	MOWER COND.	CORN PICKER	FORAGE HARVTER	ROTARY MOWERS	ALL HARVTNG
SUNDAY	57.	2.	99.	490.	425.	115.	0.	1030.	131.	12.	152.	185.	18.	498.
MONDAY	188.	42.	210.	912.	599.	228.	0.	1919.	196.	107.	383.	373.	71.	1130.
TUESDAY	263.	49.	355.	1067.	716.	165.	0.	2193.	203.	135.	332.	437.	96.	1203.
WEDNESDAY	231.	36.	347.	1113.	768.	175.	0.	2312.	301.	75.	375.	434.	128.	1314.
THURSDAY	227.	42.	322.	1082.	782.	187.	0.	2322.	277.	92.	331.	469.	153.	1324.
FRIDAY	149.	66.	265.	1122.	755.	308.	0.	2403.	368.	95.	417.	466.	157.	1504.
SATURDAY	229.	35.	359.	1089.	628.	220.	0.	2201.	300.	93.	356.	480.	170.	1398.

TOTAL HOURS OF USE IN THOUSANDS
PER YEAR IN MICHIGAN BY TYPE OF FARM

TRACTORS HITCHED TO

TYPE OF FARM	TRACTORS NARROW	TRACTORS CRAWLER	TRACTORS WIDE	TRACTORS ALL TRACTORS	SELF-PROPELLED EQUIPMENT COMBINES CORN	COMBINES GRAIN	MOWER COND.	ALL SP-EQ	ALL SP-EQ + TRAC	PLANTING + TILLAGE EQUIP PLOWS	PLANTING	ALL P+T EQUIP	FERT + CHEMICAL APPL EQUIP MANURE SPRDR	ANHYDR AMMO APPL	BOOM SPRAY	ALL F+C EQUIP
CASH CROP	4217.	479.	13773.	15459.	283.	209.	0.	1649.	16538.	1562.	999.	2562.	322.	421.	460.	1203.
DAIRY	9470.	232.	15776.	26478.	505.	149.	0.	788.	27266.	2073.	894.	2968.	3613.	23.	266.	4102.
LIVESTOCK	4226.	74.	5319.	9619.	24.	1.	0.	161.	9811.	768.	479.	1247.	1584.	97.	134.	1815.
FRUIT	257.	32.	4444.	4732.	0.	0.	0.	0.	4732.	163.	125.	288.	48.	0.	540.	588.
GENERAL	1697.	55.	3826.	5578.	0.	12.	0.	312.	5390.	551.	375.	926.	514.	0.	92.	606.
MULTIPLE	2113.	67.	3741.	5920.	0.	109.	0.	109.	6029.	465.	513.	978.	774.	90.	192.	1356.

TRACTORS HITCHED TO

TYPE OF FARM	STATIONARY OR MATERIALS HANDLING EQUIPMENT FORAGE BLWRS	ELEVATORS	FORAGE WAGONS	ALL WAGONS	FR-END LOADER	BLADE SCRAPER	CHAIN SAW	ALL S M EQUIP	HARVESTING EQUIPMENT BALER	MOWER COND.	CORN PICKER	FORAGE HARVTER	ROTARY MOWERS	ALL HARVTNG
CASH CROP	0.	46.	212.	1298.	571.	263.	0.	2175.	135.	53.	139.	88.	343.	748.
DAIRY	1102.	132.	1468.	2994.	2534.	881.	0.	7592.	920.	350.	1394.	2259.	37.	4971.
LIVESTOCK	146.	58.	152.	1299.	715.	121.	0.	2339.	394.	86.	567.	239.	51.	1336.
FRUIT	0.	0.	0.	123.	92.	5.	0.	220.	3.	0.	0.	0.	313.	316.
GENERAL	66.	20.	42.	494.	337.	45.	0.	952.	129.	35.	244.	73.	7.	489.
MULTIPLE	12.	3.	72.	640.	353.	79.	0.	1087.	181.	82.	5.	159.	32.	466.

TOTAL HOURS OF USE IN THOUSANDS
PER YEAR IN MICHIGAN BY OWNERSHIP

TRACTORS HITCHED TO

OWNERSHIP	TRACTORS NARROW	TRACTORS CRAWLER	TRACTORS WIDE	TRACTORS ALL TRACTORS	SELF-PROPELLED EQUIPMENT COMBINES CORN	COMBINES GRAIN	MOWER COND.	ALL SP-EQ	ALL SP-EQ + TRAC	PLANTING + TILLAGE EQUIP PLOWS	PLANTERS	ALL P+T EQUIP	FERT + CHEMICAL APPL EQUIP MANURE SPRDR	ANHYDR AMMO APPL	BOOM SPRAY	ALL F+C EQUIP
OWNED	21869.	952.	44035.	66856.	871.	480.	0.	2440.	69295.	5620.	3346.	8967.	6830.	631.	1652.	9113.
RENTED	38.	3.	261.	312.	0.	0.	0.	0.	312.	0.	18.	18.	4.	0.	17.	21.
BORROWED	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TRACTORS HITCHED TO

OWNERSHIP	STATIONARY OR MATERIALS HANDLING EQUIPMENT FORAGE BLWRS	ELEVATORS	FORAGE WAGONS	ALL WAGONS	FR-END LOADER	BLADE SCRAPER	CHAIN SAW	ALL S M EQUIP	HARVESTING EQUIPMENT BALER	MOWER COND.	CORN PICKER	FORAGE HARVTER	ROTARY MOWERS	ALL HARVTNG
OWNED	1236.	209.	1926.	6679.	4565.	1393.	0.	14141.	1770.	591.	2339.	2743.	783.	8185.
RENTED	0.	3.	0.	136.	63.	3.	0.	203.	18.	0.	0.	8.	0.	25.
BORROWED	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TOTAL HOURS OF USE IN THOUSANDS
PER YEAR IN MICHIGAN BY SEX

TRACTORS HITCHED TO

SEX	TRACTORS NARROW	TRACTORS CRAWLER	TRACTORS WIDE	TRACTORS ALL TRACTORS	SELF-PROPELLED EQUIPMENT COMBINES CORN	COMBINES GRAIN	MOWER COND.	ALL SP-EQ	ALL SP-EQ + TRAC	PLANTING + TILLAGE EQUIP PLOWS	PLANTERS	ALL P+T EQUIP	FERT + CHEMICAL APPL EQUIP MANURE SPRDR	ANHYDR AMMO APPL	BOOM SPRAY	ALL F+C EQUIP
MALE	20784.	918.	41798.	63499.	871.	452.	0.	2372.	65871.	5512.	3335.	8837.	6642.	631.	1657.	8930.
FEMALE	825.	23.	1758.	2486.	0.	29.	0.	52.	2538.	134.	50.	184.	166.	0.	17.	183.

TRACTORS HITCHED TO

SEX	STATIONARY OR MATERIALS HANDLING EQUIPMENT FORAGE BLWRS	ELEVATORS	FORAGE WAGONS	ALL WAGONS	FR-END LOADER	BLADE SCRAPER	CHAIN SAW	ALL S M EQUIP	HARVESTING EQUIPMENT BALER	MOWER COND.	CORN PICKER	FORAGE HARVTER	ROTARY MOWERS	ALL HARVTNG
MALE	784.	200.	1837.	6239.	4547.	1364.	0.	13174.	1676.	597.	2291.	2737.	739.	7840.
FEMALE	12.	2.	94.	571.	54.	21.	0.	659.	271.	10.	47.	91.	34.	454.

MICHIGAN

Tractors on Public Roads

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TYPE OF TRACTORS IN MICHIGAN
BY HIRED LABOR

AGE + SEX OF OPERATR	TRACTOR TYPES: NARROW FRONT	CRAWLER	WIDE FRONT	ALL
MALE				
5-14	0.	0.	0.	0.
15-24	45.	0.	92.	137.
25-44	35.	0.	58.	94.
45-64	11.	0.	36.	47.
65-OVER	1.	0.	11.	12.
ALL AGES	92.	0.	198.	290.
FEMALE				
5-14	0.	0.	0.	0.
15-24	0.	0.	0.	0.
25-44	0.	0.	0.	0.
45-64	0.	0.	0.	1.
64-OVER	0.	0.	0.	0.
ALL AGES	0.	0.	0.	1.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO YEAR BUILT IN MICHIGAN
BY HIRED LABOR

AGE + SEX OF OPERATR	TRACTORS ACCORDING TO YEAR BUILT: 1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
MALE								
5-14	0.	0.	0.	0.	0.	0.	0.	0.
15-24	2.	0.	0.	20.	15.	54.	37.	4.
25-44	1.	0.	5.	2.	10.	11.	57.	1.
45-64	0.	0.	11.	7.	3.	1.	17.	3.
65-OVER	0.	0.	0.	0.	2.	0.	11.	0.
ALL AGES	3.	7.	16.	35.	34.	66.	121.	8.
FEMALE								
5-14	0.	0.	0.	0.	0.	0.	0.	0.
15-24	0.	0.	0.	0.	0.	0.	0.	0.
25-44	0.	0.	0.	0.	0.	0.	0.	0.
45-64	0.	0.	0.	0.	0.	0.	0.	0.
64-OVER	0.	0.	0.	0.	0.	0.	0.	0.
ALL AGES	0.	0.	0.	0.	0.	0.	0.	0.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO FIEI HP CLASSES IN MICHIGAN
BY HIRED LABOR

AGE + SEX OF OPERATR	TRACTOR H.P. CLASSES: 9 TO 39	40 TO 59	60 TO 99	100 AND OVER
MALE				
5-14	0.	0.	0.	0.
15-24	21.	36.	80.	1.
25-44	20.	32.	35.	4.
45-64	13.	13.	14.	0.
65-OVER	11.	1.	1.	0.
ALL AGES	64.	80.	130.	5.
FEMALE				
5-14	0.	0.	0.	0.
15-24	0.	0.	0.	0.
25-44	0.	0.	0.	0.
45-64	0.	0.	0.	0.
64-OVER	0.	0.	0.	0.
ALL AGES	0.	0.	0.	0.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO MAKE IN MICHIGAN
BY HIRED LABOR

AGE + SEX OF OPERATR	TRACTORS ACCORDING TO MAKE: ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
MALE									
5-14	0.	0.	0.	0.	0.	0.	0.	0.	0.
15-24	3.	6.	21.	2.	97.	2.	2.	3.	3.
25-44	6.	1.	31.	3.	24.	9.	0.	2.	13.
45-64	5.	2.	33.	2.	6.	0.	0.	0.	0.
65-OVER	0.	0.	0.	11.	1.	1.	0.	0.	0.
ALL AGES	14.	9.	84.	18.	128.	12.	2.	5.	16.
FEMALE									
5-14	0.	0.	0.	0.	0.	0.	0.	0.	0.
15-24	0.	0.	0.	0.	0.	0.	0.	0.	0.
25-44	0.	0.	0.	0.	0.	0.	0.	0.	0.
45-64	0.	0.	1.	0.	0.	0.	0.	0.	0.
64-OVER	0.	0.	0.	0.	0.	0.	0.	0.	0.
ALL AGES	0.	0.	1.	0.	0.	0.	0.	0.	0.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TYPE OF TRACTORS IN MICHIGAN BY FAMILY LABOR

AGE + SEX OF OPERATR	NARROW FRONT	CRAWLER	WIDE FRONT	ALL
MALE				
5-14	39.	0.	27.	66.
15-24	1 5.	0.	141.	245.
25-44	232.	1.	328.	466.
45-64	251.	1.	284.	536.
65-OVER	27.	0.	23.	50.
ALL AGES	553.	1.	773.	1367.
FEMALE				
5-14	0.	0.	9.	9.
15-24	12.	0.	9.	21.
25-44	7.	0.	7.	14.
45-64	10.	0.	7.	16.
64-OVER	0.	0.	0.	0.
ALL AGES	29.	0.	31.	60.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO YEAR BUILT IN MICHIGAN BY FAMILY LABOR

AGE + SEX OF OPERATR	1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
MALE								
5-14	0.	0.	4.	27.	6.	13.	17.	0.
15-24	0.	15.	27.	16.	46.	34.	86.	20.
25-44	3.	1.	12.	43.	56.	151.	163.	33.
45-64	12.	17.	25.	85.	52.	80.	201.	31.
65-OVER	0.	2.	2.	10.	10.	13.	9.	0.
ALL AGES	14.	34.	70.	184.	174.	290.	476.	84.
FEMALE								
5-14	0.	0.	0.	0.	0.	0.	9.	0.
15-24	0.	1.	0.	5.	0.	2.	7.	0.
25-44	0.	0.	0.	1.	5.	3.	4.	1.
45-64	0.	0.	1.	0.	1.	0.	5.	1.
64-OVER	0.	0.	0.	0.	0.	0.	0.	0.
ALL AGES	0.	1.	1.	6.	11.	13.	25.	2.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO FIEI HP CLASSES IN MICHIGAN BY FAMILY LABOR

AGE + SEX OF OPERATR	TRACTOR H.P. CLASSES 3 TO 39	40 TO 59	60 TO 99	100 AND OVER
MALE				
5-14	26.	18.	13.	0.
15-24	83.	37.	76.	8.
25-44	91.	156.	191.	8.
45-64	155.	150.	165.	9.
65-OVER	14.	28.	8.	0.
ALL AGES	346.	441.	471.	26.
FEMALE				
5-14	0.	0.	9.	0.
15-24	5.	3.	6.	0.
25-44	5.	2.	5.	0.
45-64	2.	3.	12.	0.
64-OVER	0.	0.	0.	0.
ALL AGES	15.	9.	32.	0.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO MAKE IN MICHIGAN BY FAMILY LABOR

AGE + SEX OF OPERATR	ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
MALE									
5-14	3.	5.	27.	5.	18.	2.	5.	1.	0.
15-24	99.	8.	50.	14.	66.	23.	10.	10.	5.
25-44	47.	37.	132.	6.	180.	10.	15.	24.	2.
45-64	52.	42.	140.	13.	155.	15.	33.	51.	5.
65-OVER	5.	5.	21.	3.	20.	4.	0.	2.	0.
ALL AGES	164.	98.	373.	41.	429.	60.	63.	88.	12.
FEMALE									
5-14	0.	0.	0.	0.	9.	0.	0.	0.	0.
15-24	0.	4.	4.	3.	13.	0.	0.	0.	0.
25-44	1.	0.	3.	0.	8.	1.	0.	0.	0.
45-64	1.	0.	2.	0.	11.	0.	0.	0.	2.
64-OVER	0.	0.	0.	0.	0.	0.	0.	0.	0.
ALL AGES	1.	5.	10.	3.	38.	1.	0.	0.	2.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TYPE OF TRACTORS IN MICHIGAN BY DAY OF WEEK

DAY OF WEEK	TRACTOR TYPES: NARROW FRONT	CRAWLER	WIDE FRONT	ALL
SUNDAY	36.	0.	57.	93.
MONDAY	105.	0.	177.	282.
TUESDAY	95.	0.	178.	273.
WEDNESDAY	87.	0.	171.	259.
THURSDAY	98.	0.	156.	254.
FRIDAY	130.	0.	145.	275.
SATURDAY	119.	1.	146.	266.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO YEAR BUILT IN MICHIGAN BY DAY OF WEEK

DAY OF WEEK	TRACTORS ACCORDING TO YEAR BUILT: 1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
SUNDAY	4.	2.	5.	15.	13.	19.	29.	6.
MONDAY	4.	7.	20.	34.	36.	63.	114.	22.
TUESDAY	2.	7.	10.	40.	35.	70.	91.	17.
WEDNESDAY	2.	6.	11.	36.	23.	61.	107.	12.
THURSDAY	3.	8.	12.	40.	36.	46.	100.	11.
FRIDAY	3.	5.	17.	27.	40.	56.	116.	11.
SATURDAY	1.	7.	15.	35.	37.	64.	91.	14.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO FIXED HP CLASSES IN MICHIGAN BY DAY OF WEEK

DAY OF WEEK	TRACTOR H.P. CLASSES: 0 TO 35	40 TO 60	80 TO 99	100 AND OVER
SUNDAY	32.	20.	36.	3.
MONDAY	82.	60.	116.	7.
TUESDAY	67.	56.	99.	6.
WEDNESDAY	64.	53.	93.	3.
THURSDAY	72.	65.	89.	1.
FRIDAY	61.	59.	119.	3.
SATURDAY	71.	80.	98.	5.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO MAKE IN MICHIGAN BY DAY OF WEEK

DAY OF WEEK	TRACTORS ACCORDING TO MAKE: ALLIS CHALMERS	FORD	I.H.	OLIVER	OTHERS
SUNDAY	8.	4.	20.	7.	1.
MONDAY	24.	17.	82.	13.	5.
TUESDAY	34.	22.	78.	14.	2.
WEDNESDAY	24.	21.	72.	15.	6.
THURSDAY	26.	14.	71.	16.	9.
FRIDAY	26.	16.	78.	15.	8.
SATURDAY	35.	19.	74.	14.	4.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS)
PER YEAR OF TYPE OF TRACTORS IN MICHIGAN
BY TYPE OF FARM

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO YEAR BUILT IN MICHIGAN
BY TYPE OF FARM

TYPE OF FARM	TRACTOR TYPES: NARROW FRONT	CRAWLER	WIDE FRONT	ALL	TRACTORS ACCORDING TO YEAR BUILT: 1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
CASH CROP	81.	1.	229.	310.	2.	9.	18.	38.	42.	49.	132.	21.
DAIRY	322.	0.	447.	769.	5.	22.	35.	85.	101.	197.	270.	53.
LIVESTOCK	130.	0.	157.	287.	7.	2.	13.	60.	45.	72.	86.	2.
FRUIT	0.	0.	32.	32.	0.	0.	0.	2.	0.	4.	25.	1.
GENERAL	70.	0.	70.	140.	1.	6.	8.	28.	19.	34.	37.	7.
MULTIPLE	84.	0.	92.	175.	4.	3.	16.	12.	14.	22.	95.	9.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO FIVE HP CLASSES IN MICHIGAN
BY TYPE OF FARM

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO MAKE IN MICHIGAN
BY TYPE OF FARM

TYPE OF FARM	TRACTOR H.P. CLASSES: 9 TO 39	40 TO 59	60 TO 99	100 AND OVER	TRACTORS ACCORDING TO MAKE: ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
CASH CROP	64.	108.	131.	7.	18.	9.	93.	5.	132.	21.	9.	11.	15.
DAIRY	211.	230.	253.	16.	73.	79.	193.	24.	270.	32.	27.	53.	16.
LIVESTOCK	71.	115.	103.	2.	49.	9.	109.	10.	72.	6.	24.	8.	1.
FRUIT	8.	20.	4.	0.	0.	2.	3.	10.	7.	10.	0.	0.	0.
GENERAL	56.	33.	35.	3.	22.	14.	25.	18.	49.	5.	3.	4.	0.
MULTIPLE	26.	53.	97.	1.	13.	1.	56.	9.	73.	4.	2.	18.	0.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TYPE OF TRACTORS IN MICHIGAN
BY ACREAGE

BY ACREAGE	TRACTOR TYPES: NARROW FRONT	CRAWLER	WIDE FRONT	ALL	TRACTORS ACCORDING TO YEAR BUILT: 1935-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
BELOW-50	8.	0.	6.	14.	1.	1.	1.	3.	2.	1.	5.	0.
50-99	42.	0.	31.	73.	3.	2.	9.	14.	9.	15.	21.	0.
100-199	72.	1.	135.	208.	3.	5.	6.	43.	33.	60.	65.	4.
200-499	368.	3.	513.	885.	12.	18.	63.	133.	108.	224.	304.	44.
500-999	123.	0.	268.	391.	0.	16.	11.	33.	63.	66.	178.	24.
1000-ABOVE	30.	0.	59.	89.	0.	0.	0.	0.	6.	12.	67.	4.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO YEAR BUILT IN MICHIGAN
BY ACREAGE

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO FIVE HP CLASSES IN MICHIGAN
BY ACREAGE

BY ACREAGE	TRACTOR H.P. CLASSES: 8 TO 39	40 TO 59	60 TO 99	100 AND OVER	TRACTORS ACCORDING TO MAKE: ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
BELOW-50	7.	5.	0.	1.	3.	0.	4.	1.	3.	0.	5.	0.	1.
50-99	44.	19.	9.	1.	9.	3.	23.	8.	14.	9.	6.	4.	0.
100-199	78.	82.	47.	3.	22.	16.	78.	17.	49.	11.	3.	20.	4.
200-499	225.	302.	341.	4.	85.	82.	227.	23.	354.	39.	20.	51.	24.
500-999	69.	116.	173.	10.	62.	9.	114.	28.	119.	7.	31.	13.	4.
1000-ABOVE	0.	23.	58.	7.	3.	3.	25.	0.	57.	1.	0.	0.	0.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TYPE OF TRACTORS IN MICHIGAN
BY TRACTOR TYPES

TRACTOR TYPES	NARROW FRONT	CRAWLER	WIDE FRONT	ALL
ALLIS-CHAL	7.	1.	182.	180.
FORD	2.	..	111.	113.
I. H.	249.	0.	226.	475.
J. I. CASE	14.	..	62.	76.
JOHN DEERE	267.	..	334.	602.
MASEY FERG	3.	0.	76.	79.
MIN MOLINE	15.	0.	49.	65.
OLIVER	54.	0.	40.	94.
OTHERS	2.	0.	31.	33.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO YEAR BUILT IN MICHIGAN
BY TRACTOR TYPES

TRACTOR TYPES	1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
ALLIS-CHAL	0.	2.	21.	45.	35.	40.	28.	9.
FORD	0.	2.	6.	14.	8.	40.	42.	0.
I. H.	11.	31.	35.	84.	65.	102.	126.	20.
J. I. CASE	0.	0.	5.	4.	4.	18.	45.	0.
JOHN DEERE	8.	6.	13.	44.	68.	149.	235.	31.
MASEY FERG	0.	4.	1.	2.	21.	12.	19.	18.
MIN MOLINE	0.	0.	2.	10.	5.	5.	32.	5.
OLIVER	0.	2.	5.	19.	12.	13.	36.	10.
OTHERS	0.	0.	1.	4.	0.	0.	28.	0.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO FIXED HP CLASSES IN MICHIGAN
BY TRACTOR TYPES

TRACTOR TYPES	9 TO 39	40 TO 59	60 TO 99	100 AND OVER
ALLIS-CHAL	87.	69.	29.	2.
FORD	43.	35.	15.	0.
I. H.	85.	217.	144.	7.
J. I. CASE	39.	26.	9.	0.
JOHN DEERE	126.	87.	379.	7.
MASEY FERG	22.	29.	15.	8.
MIN MOLINE	14.	23.	21.	6.
OLIVER	32.	25.	35.	1.
OTHERS	6.	22.	3.	..

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO MAKE IN MICHIGAN
BY TRACTOR TYPES

TRACTOR TYPES	ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
ALLIS-CHAL	180.	0.	0.	..	0.	0.	0.	0.	0.
FORD	0.	113.	0.	0.	0.	0.	0.	0.	0.
I. H.	0.	0.	475.	0.	0.	0.	0.	0.	0.
J. I. CASE	0.	0.	..	76.	0.	0.	0.	0.	0.
JOHN DEERE	0.	0.	0.	0.	602.	0.	0.	0.	0.
MASEY FERG	0.	0.	0.	0.	0.	79.	0.	0.	0.
MIN MOLINE	0.	0.	0.	0.	0.	0.	65.	0.	0.
OLIVER	0.	0.	0.	0.	0.	0.	0.	94.	0.
OTHERS	0.	0.	0.	0.	0.	0.	0.	0.	33.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TYPE OF TRACTORS IN MICHIGAN BY FUEL USED

FUEL USED	NARROW FRONT	CRAWLER	WIDE FRONT	ALL
GASOLINE	477.	1.	474.	951.
L.P.G.	13.	0.	7.	19.
DIESEL	196.	3.	547.	743.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO YEAR BUILT IN MICHIGAN BY FUEL USED

FUEL USED	1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
GASOLINE	13.	42.	88.	215.	167.	196.	215.	13.
L.P.G.	0.	0.	0.	4.	3.	3.	10.	0.
DIESEL	3.	0.	1.	8.	52.	180.	419.	81.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO FIRST HP CLASSES IN MICHIGAN BY FUEL USED

FUEL USED	9 TO 39	40 TO 59	60 TO 99	100 AND OVER
GASOLINE	378.	309.	157.	6.
L.P.G.	3.	11.	6.	0.
DIESEL	59.	164.	476.	34.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO MAKE IN MICHIGAN BY FUEL USED

FUEL USED	ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
GASOLINE	157.	81.	316.	23.	220.	43.	38.	67.	5.
L.P.G.	3.	3.	6.	0.	1.	0.	7.	3.	0.
DIESEL	24.	32.	147.	53.	381.	36.	19.	25.	28.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TYPE OF TRACTORS IN MICHIGAN BY OWNERSHIP

OWNERSHIP	TRACTOR TYPES: NARROW FRONT	CRAWLER	WIDE FRONT	ALL
OWNED	679.	1.	1007.	1687.
RENTED	2.	0.	17.	19.
BORROWED	5.	0.	2.	6.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO YEAR BUILT IN MICHIGAN BY OWNERSHIP

OWNERSHIP	TRACTORS ACCORDING TO YEAR BUILT: 1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
OWNED	19.	42.	76.	226.	220.	373.	637.	94.
RENTED	0.	0.	13.	0.	0.	1.	4.	0.
BORROWED	0.	0.	0.	1.	1.	4.	1.	0.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO FIXED HP CLASSES IN MICHIGAN BY OWNERSHIP

OWNERSHIP	TRACTOR H.P. CLASSES: 9 TO 39	40 TO 59	60 TO 99	100 AND OVER
OWNED	433.	523.	644.	30.
RENTED	1.	14.	0.	0.
BORROWED	4.	2.	1.	0.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO MAKE IN MICHIGAN BY OWNERSHIP

OWNERSHIP	TRACTORS ACCORDING TO MAKE: ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
OWNED	177.	113.	455.	73.	601.	76.	64.	94.	33.
RENTED	0.	0.	15.	3.	0.	0.	0.	0.	0.
BORROWED	4.	0.	1.	0.	1.	1.	0.	0.	0.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TYPE OF TRACTORS IN MICHIGAN BY SEX

SEX	TRACTOR TYPES: NARROW FRONT	CRAWLER	WIDE FRONT	ALL
MALE	651.	1.	993.	1645.
FEMALE	35.	0.	37.	72.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO YEAR BUILT IN MICHIGAN BY SEX

SEX	TRACTORS ACCORDING TO YEAR BUILT: 1935-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
MALE	19.	42.	88.	219.	209.	358.	618.	92.
FEMALE	0.	1.	1.	7.	12.	20.	29.	2.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO FIEI HP CLASSES IN MICHIGAN BY SEX

SEX	TRACTOR H.P. CLASSES: 9 TO 39	40 TO 59	60 TO 99	100 AND OVER
MALE	420.	533.	666.	30.
FEMALE	15.	11.	38.	0.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO MAKE IN MICHIGAN BY SEX

SEX	TRACTORS ACCORDING TO MAKE: ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
MALE	179.	268.	462.	72.	553.	77.	65.	94.	30.
FEMALE	1.	5.	12.	5.	44.	2.	0.	0.	3.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TYPE OF TRACTORS IN MICHIGAN BY TIME SPENT WORKING ON FARM

TYPE OF FARMER	TRACTOR TYPES: NARROW FRONT	CRAWLER	WIDE FRONT	ALL
FULL TIME	635.	1.	983.	1619.
PART TIME	50.	0.	47.	97.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO YEAR BUILT IN MICHIGAN BY TIME SPENT WORKING ON FARM

TYPE OF FARMER	TRACTORS ACCORDING TO YEAR BUILT: 1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
FULL TIME	18.	37.	83.	203.	211.	368.	606.	92.
PART TIME	1.	6.	7.	23.	10.	10.	38.	2.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO FIXED HP CLASSES IN MICHIGAN BY TIME SPENT WORKING ON FARM

TYPE OF FARMER	TRACTOR H.P. CLASSES: 9 TO 39	40 TO 59	60 TO 99	100 AND OVER
FULL TIME	430.	586.	627.	26.
PART TIME	32.	33.	19.	4.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO MAKE IN MICHIGAN BY TIME SPENT WORKING ON FARM

TYPE OF FARMER	TRACTORS ACCORDING TO MAKE: ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
FULL TIME	177.	107.	426.	70.	581.	76.	62.	87.	32.
PART TIME	3.	6.	49.	6.	21.	3.	2.	7.	1.

MICHIGAN

Farm Machinery on Public Roads

TOTAL HOURS ON PUBLIC ROADS IN THOUSANDS
PER YEAR IN MICHIGAN BY MONTH

TRACTORS HITCHED TO

MONTH	TRACTORS NARROW	TRACTORS CRAWLER	TRACTORS WIDE	TRACTORS ALL TRACTORS	SELF-PROPELLED EQUIPMENT COMBINES CORN	COMBINES GRAIN	MOWER COND.	ALL SP-EQ	ALL SP-EQ + TRAC	PLANTING + TILLAGE EQUIP PLOWS	PLANTERS	ALL P+T EQUIP	FERT + CHEMICAL APPL EQUIP MANURE SPRDR	ANHYDR AMMO APPL	BOOM SPRAY	ALL F+C EQUIP
JAN.	19.	0.	26.	45.	2.	0.	0.	2.	46.	0.	0.	0.	9.	0.	0.	9.
FEB.	46.	0.	2.	48.	0.	0.	0.	0.	48.	0.	0.	0.	0.	0.	0.	0.
MARCH	21.	0.	58.	79.	0.	0.	0.	0.	79.	0.	1.	1.	39.	0.	0.	39.
APRIL	61.	0.	75.	156.	0.	0.	0.	0.	156.	15.	4.	20.	57.	0.	2.	59.
MAY	47.	0.	124.	171.	0.	0.	0.	0.	171.	23.	24.	47.	15.	4.	20.	39.
JUNE	111.	0.	116.	226.	0.	0.	0.	0.	226.	5.	11.	15.	14.	7.	16.	37.
JULY	84.	0.	116.	199.	0.	6.	0.	18.	208.	3.	1.	3.	27.	3.	0.	29.
AUG.	53.	0.	107.	161.	0.	2.	0.	4.	165.	4.	1.	5.	6.	0.	3.	9.
SEPT.	71.	0.	164.	235.	0.	0.	0.	11.	246.	1.	8.	9.	7.	0.	6.	13.
OCT.	39.	0.	68.	107.	8.	0.	0.	14.	121.	0.	1.	1.	6.	0.	0.	6.
NOV.	16.	0.	74.	90.	0.	0.	0.	1.	91.	7.	0.	7.	3.	0.	0.	3.
DEC.	50.	0.	11.	52.	0.	0.	0.	5.	56.	1.	0.	1.	13.	0.	0.	13.
TOTAL	627.	0.	933.	1560.	11.	8.	0.	56.	1616.	58.	49.	107.	196.	14.	47.	256.

TRACTORS HITCHED TO

MONTH	STATIONARY OR MATERIALS HANDLING EQUIPMENT FORAGE BLWRS	ELEVATORS	FORAGE WAGONS	ALL WAGONS	FR-END LOADER	BLADE SCRAPER	CHAIN SAW	ALL S M EQUIP	HARVESTING EQUIPMENT BALER	MOWER COND.	CORN PICKER	FORAGE HARVTER	ROTARY MOWERS	ALL HARVTNG
JAN.	0.	2.	0.	14.	10.	3.	0.	28.	0.	0.	0.	0.	0.	0.
FEB.	0.	0.	0.	38.	0.	8.	0.	46.	0.	0.	0.	0.	0.	0.
MARCH	0.	0.	2.	24.	3.	1.	0.	29.	0.	0.	0.	0.	0.	0.
APRIL	0.	0.	2.	7.	7.	4.	0.	18.	0.	0.	0.	0.	0.	0.
MAY	1.	2.	0.	22.	4.	3.	0.	30.	1.	0.	3.	1.	2.	5.
JUNE	0.	2.	37.	53.	2.	1.	0.	57.	15.	7.	0.	15.	0.	37.
JULY	0.	0.	15.	70.	1.	1.	0.	72.	18.	5.	0.	9.	2.	34.
AUG.	0.	0.	8.	41.	2.	0.	0.	43.	23.	8.	0.	21.	0.	51.
SEPT.	5.	1.	110.	129.	0.	4.	0.	140.	3.	0.	1.	33.	0.	38.
OCT.	0.	1.	11.	67.	0.	0.	0.	68.	1.	0.	8.	11.	1.	21.
NOV.	0.	0.	1.	59.	0.	0.	0.	59.	0.	0.	10.	1.	3.	13.
DEC.	0.	0.	0.	27.	0.	1.	0.	29.	0.	0.	3.	0.	0.	3.
TOTAL	6.	3.	190.	551.	30.	27.	0.	616.	61.	20.	23.	90.	10.	203.

TOTAL HOURS ON PUBLIC ROADS IN THOUSANDS
PER YEAR IN MICHIGAN BY DAY OF WEEK

	TRACTORS				SELF-PROPELLED EQUIPMENT					TRACTORS HITCHED TO PLANTING + TILLAGE EQUIP			FERT + CHEMICAL APPL EQUIP			
DAY OF WEEK	NARROW	CRAWLER	WIDE	ALL TRACTORS	COMBINES CORN	COMBINES GRAIN	MOWER COND.	ALL SP-EQ	ALL SP-EQ + TRAC	PLOWS	PLANTERS	ALL P+T EQUIP	MANURE SPRDR	ANHYDR AMMO APPL	BOOM SPRAY	ALL F+C EQUIP
SUNDAY	35.	0.	57.	92.	0.	1.	0.	3.	96.	4.	2.	6.	15.	2.	2.	19.
MONDAY	132.	0.	125.	225.	1.	0.	0.	8.	236.	8.	3.	11.	28.	4.	7.	39.
TUESDAY	84.	0.	155.	239.	1.	0.	0.	5.	244.	11.	5.	15.	29.	2.	4.	35.
WEDNESDAY	81.	0.	164.	245.	1.	1.	0.	7.	252.	6.	7.	13.	25.	3.	6.	36.
THURSDAY	96.	0.	154.	250.	1.	1.	0.	10.	259.	7.	14.	21.	37.	2.	7.	46.
FRIDAY	127.	0.	141.	267.	2.	4.	0.	13.	281.	12.	9.	20.	35.	1.	12.	48.
SATURDAY	105.	0.	141.	[illegible]	5.	1.	0.	10.	256.	11.	10.	21.	24.	0.	10.	35.

TRACTORS HITCHED TO

	STATIONARY OR MATERIALS HANDLING EQUIPMENT							HARVESTING EQUIPMENT					
DAY OF WEEK	FORAGE BLWRS	ELEVATORS	FORAGE WAGONS	ALL WAGONS	FR-END LOADER	BLADE SCRAPER	CHAIN SAW	ALL S M EQUIP	BALER	MOWER COND.	CORN PICKER	FORAGE HARVTER	ROTARY MOWERS	ALL HARVTNG
SUNDAY	3.	0.	11.	26.	4.	1.	0.	34.	4.	1.	1.	8.	1.	15.
MONDAY	0.	0.	31.	93.	3.	1.	0.	97.	10.	4.	2.	12.	1.	29.
TUESDAY	1.	0.	39.	90.	2.	1.	0.	94.	13.	3.	2.	13.	1.	32.
WEDNESDAY	0.	0.	39.	103.	4.	3.	0.	115.	9.	2.	3.	10.	1.	25.
THURSDAY	1.	1.	23.	67.	10.	3.	0.	82.	9.	2.	5.	10.	2.	27.
FRIDAY	3.	1.	22.	88.	6.	13.	0.	107.	7.	4.	5.	17.	2.	35.
SATURDAY	5.	1.	26.	75.	2.	6.	0.	89.	9.	4.	6.	19.	3.	41.

TOTAL HOURS ON PUBLIC ROADS IN THOUSANDS
PER YEAR IN MICHIGAN BY TYPE OF FARM

TRACTORS HITCHED TO

TYPE OF FARM	TRACTORS WHEEL	TRACTORS CRAWLER	TRACTORS ALL	ALL TRACTORS	SELF-PROPELLED EQUIPMENT COMBINES CORN	COMBINES GRAIN	MOWER COND.	ALL SP-EQ	ALL SP-EQ + TRAC	PLANTING + TILLAGE EQUIP PLOWS	PLANTERS	ALL P+T EQUIP	FERT + CHEMICAL APPL EQUIP MANURE SPRDR	ANHYDR AMMO APPL	BOOM SPRAY	ALL F+C EQUIP
CASH CROP	66.	0.	140.	206.	5.	0.	0.	26.	246.	10.	20.	35.	14.	7.	15.	36.
DAIRY	309.	0.	439.	748.	6.	4.	0.	12.	744.	10.	12.	26.	113.	2.	11.	117.
LIVESTOCK	113.	0.	141.	254.	0.	0.	0.	9.	264.	11.	6.	17.	35.	2.	6.	42.
FRUIT	0.	0.	28.	28.	0.	0.	0.	0.	28.	2.	2.	3.	0.	0.	5.	5.
GENERAL	57.	0.	56.	114.	0.	0.	0.	9.	123.	9.	4.	14.	10.	0.	5.	14.
MULTIPLE	82.	0.	86.	168.	0.	2.	0.	2.	171.	7.	5.	11.	34.	3.	5.	41.

TRACTORS HITCHED TO

TYPE OF FARM	STATIONARY OR MATERIALS HANDLING EQUIPMENT FORAGE BLWRS	ELEVATORS	FORAGE WAGONS	ALL WAGONS	FR-END LOADER	BLADE SCRAPER	CHAIN SAW	ALL S M EQUIP	HARVESTING EQUIPMENT BALER	MOWER COND.	CORN PICKER	FORAGE HARVTER	ROTARY MOWERS	ALL HARVTNG
CASH CROP	0.	0.	12.	65.	6.	8.	0.	38.	4.	3.	2.	6.	4.	20.
DAIRY	6.	3.	162.	291.	11.	12.	0.	323.	40.	11.	14.	72.	2.	138.
LIVESTOCK	0.	1.	7.	108.	5.	6.	0.	111.	12.	2.	3.	2.	0.	19.
FRUIT	0.	0.	0.	3.	0.	0.	0.	3.	0.	0.	0.	0.	3.	3.
GENERAL	0.	0.	2.	29.	3.	1.	0.	33.	2.	2.	3.	0.	0.	6.
MULTIPLE	0.	0.	7.	63.	5.	0.	0.	68.	3.	2.	0.	9.	1.	15.

TOTAL HOURS ON PUBLIC ROADS IN THOUSANDS
PER YEAR IN MICHIGAN BY OWNERSHIP

	TRACTORS				SELF-PROPELLED EQUIPMENT					TRACTORS HITCHED TO PLANTING + TILLAGE EQUIP			FERT + CHEMICAL APPL EQUIP			
OWNERSHIP	NARROW	CRAWLER	WIDE	ALL TRACTORS	COMBINES CORN	COMBINES GRAIN	MOWER COND.	ALL SP-EQ	ALL SP-EQ + TRAC	PLOWS	PLANTERS	ALL P+T EQUIP	MANURE SPRDR	ANHYDR AMMO APPL	BOOM SPRAY	ALL F+C EQUIP
OWNED	622.	0.	912.	1534.	11.	8.	0.	56.	1590.	59.	48.	107.	193.	14.	46.	253.
RENTED	1.	0.	16.	17.	0.	0.	0.	0.	17.	0.	0.	0.	1.	0.	0.	1.
BORROWED	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TRACTORS HITCHED TO

	STATIONARY OR MATERIALS HANDLING EQUIPMENT								HARVESTING EQUIPMENT					
OWNERSHIP	FORAGE BLWRS	ELEVA TORS	FORAGE WAGONS	ALL WAGONS	FR-END LOADER	BLADE SCRAPER	CHAIN SAW	ALL S M EQUIP	BALER	MOWER COND.	CORN PICKER	FORAGE HARVTR	ROTARY MOWERS	ALL HARVTNG
OWNED	6.	3.	186.	534.	30.	27.	0.	600.	61.	20.	23.	98.	10.	206.
RENTED	0.	0.	0.	14.	0.	0.	0.	14.	0.	0.	0.	1.	0.	2.
BORROWED	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TOTAL HOURS ON PUBLIC ROADS IN THOUSANDS
PER YEAR IN MICHIGAN BY SEX

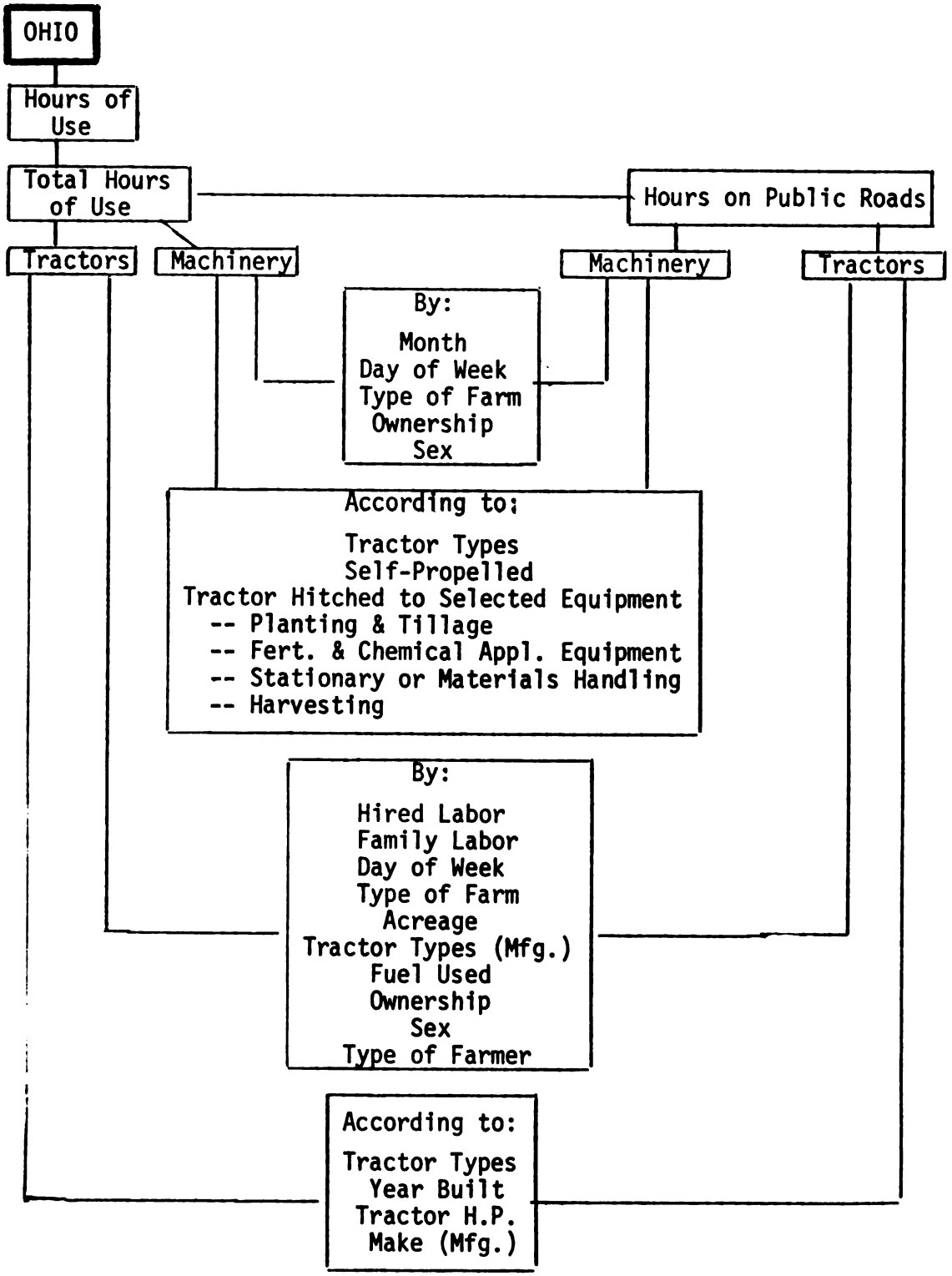
	TRACTORS				SELF-PROPELLED EQUIPMENT					TRACTORS HITCHED TO PLANTING + TILLAGE EQUIP			FERT + CHEMICAL APPL EQUIP			
SEX	NARROW	CRAWLER	WIDE	ALL TRACTORS	COMBINES CORN	COMBINES GRAIN	MOWER COND.	ALL SP-EQ	ALL SP-EQ + TRAC	PLOWS	PLANTERS	ALL P+T EQUIP	MANURE SPRDR	ANHYDR AMMO APPL	BOOM SPRAY	ALL F+C EQUIP
MALE	595.	0.	893.	1493.	11.	7.	0.	55.	1548.	59.	49.	108.	196.	14.	47.	256.
FEMALE	28.	0.	30.	59.	0.	1.	0.	1.	60.	0.	0.	1.	0.	0.	0.	0.

TRACTORS HITCHED TO

	STATIONARY OR MATERIALS HANDLING EQUIPMENT								HARVESTING EQUIPMENT					
SEX	FORAGE BLWRS	ELEVA TORS	FORAGE WAGONS	ALL WAGONS	FR-END LOADER	BLADE SCRAPER	CHAIN SAW	ALL S M EQUIP	BALER	MOWER COND.	CORN PICKER	FORAGE HARVTR	ROTARY MOWERS	ALL HARVTNG
MALE	1.	3.	184.	523.	29.	27.	0.	583.	54.	19.	20.	82.	10.	185.
FEMALE	1.	0.	6.	29.	0.	0.	0.	30.	7.	1.	2.	8.	0.	17.

OHIO

Key to Computer-Printed Output



OHIO

Total Hours of Tractor Use

TOTAL HOURS OF USE (IN THOUSANDS)
PER YEAR OF TYPE OF TRACTORS IN OHIO
BY HIRED LABOR

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO YEAR BUILT IN OHIO
BY HIRED LABOR

	TRACTOR TYPES				TRACTORS ACCORDING TO YEAR BUILT							
AGE + SEX OF OPERATR	NARROW FRONT	CRAWLER	WIDE FRONT	ALL	1930-35	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
MALE												
5-14	124.	0.	117.	242.	0.	0.	0.	85.	47.	20.	56.	31.
15-24	1165.	20.	1775.	2905.	189.	123.	225.	663.	334.	402.	705.	253.
25-44	1283.	0.	1575.	2859.	117.	158.	263.	371.	180.	323.	875.	182.
45-64	1339.	0.	1507.	2826.	63.	73.	325.	396.	351.	444.	646.	129.
65-OVER	234.	0.	99.	333.	0.	127.	39.	18.	16.	104.	31.	0.
ALL AGES	3727.	20.	5157.	8965.	358.	481.	851.	1435.	927.	1794.	2513.	606.
FEMALE												
5-14	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
15-24	0.	0.	3.	3.	0.	0.	0.	3.	0.	0.	1.	0.
25-44	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
45-64	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
64-OVER	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ALL AGES	0.	0.	3.	3.	0.	0.	0.	3.	0.	0.	1.	0.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO FIEI HP CLASSES IN OHIO
BY HIRED LABOR

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO MAKE IN OHIO
BY HIRED LABOR

	TRACTOR H.P. CLASSES				TRACTORS ACCORDING TO MAKE								
AGE + SEX OF OPERATR	9 TO 39	40 TO 59	60 TO 99	100 AND OVER	ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
MALE													
5-14	142.	74.	25.	0.	24.	49.	119.	0.	45.	14.	0.	0.	0.
15-24	930.	540.	846.	0.	231.	433.	1043.	0.	562.	257.	29.	266.	75.
25-44	754.	837.	1101.	112.	287.	235.	960.	43.	1132.	168.	21.	34.	0.
45-64	1153.	463.	663.	214.	168.	432.	598.	67.	538.	336.	33.	425.	11.
65-OVER	246.	42.	45.	0.	15.	92.	174.	0.	45.	0.	7.	0.	0.
ALL AGES	3291.	2259.	2678.	326.	726.	1246.	2392.	110.	2321.	775.	87.	726.	87.
FEMALE													
5-14	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
15-24	3.	0.	1.	0.	1.	3.	0.	0.	0.	0.	0.	0.	0.
25-44	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
45-64	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
64-OVER	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ALL AGES	3.	0.	1.	0.	1.	3.	0.	0.	0.	0.	0.	0.	0.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF TYPE OF TRACTORS IN OHIO BY FAMILY LABOR

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO YEAR BUILT IN OHIO BY FAMILY LABOR

AGE + SEX OF OPERATR	TRACTOR TYPES: NARROW FRONT	CRAWLER	WIDE FRONT	ALL	TRACTORS ACCORDING TO YEAR BUILT: 1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
MALE												
5-14	392.	27.	1912.	2531.	2.	92.	310.	242.	372.	419.	644.	250.
15-24	4572.	9.	5933.	10473.	54.	94.	311.	1757.	1139.	2132.	3125.	1391.
25-44	10355.	180.	13045.	23590.	357.	186.	1379.	3211.	3159.	4190.	9024.	2834.
45-64	13252.	50.	15531.	28879.	756.	434.	2261.	4350.	4937.	4001.	10110.	1932.
65-OVER	3537.	53.	2763.	6408.	143.	287.	744.	1741.	1292.	1362.	1081.	137.
ALL AGES	32308.	339.	33744.	71650.	1312.	1012.	5446.	11349.	10870.	11863.	24134.	5344.
FEMALE												
5-14	15.	0.	89.	106.	0.	0.	0.	21.	51.	16.	18.	0.
15-24	188.	3.	163.	354.	23.	13.	29.	60.	45.	37.	59.	19.
25-44	314.	0.	609.	923.	103.	0.	22.	136.	55.	189.	233.	93.
45-64	233.	0.	529.	1007.	0.	3.	5.	126.	129.	153.	602.	47.
64-OVER	0.	0.	12.	12.	0.	0.	0.	0.	5.	4.	3.	0.
ALL AGES	756.	3.	1703.	2461.	126.	17.	56.	461.	286.	399.	1015.	150.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO FIEI HP CLASSES IN OHIO BY FAMILY LABOR

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO MAKE IN OHIO BY FAMILY LABOR

AGE + SEX OF OPERATR	TRACTOR H.P. CLASSES: 5 TO 39	40 TO 59	60 TO 99	100 AND OVER	TRACTORS ACCORDING TO MAKE: ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
MALE													
5-14	735.	379.	665.	25.	238.	414.	549.	190.	579.	329.	24.	155.	53.
15-24	3109.	3112.	3568.	426.	812.	1058.	2736.	359.	2647.	719.	522.	1160.	530.
25-44	5935.	7427.	8344.	1014.	1644.	2575.	6495.	916.	6811.	2500.	558.	1583.	408.
45-64	9722.	9525.	5463.	271.	3329.	3552.	6715.	1195.	6197.	4075.	320.	2536.	664.
65-OVER	3059.	1793.	1004.	12.	583.	1207.	1536.	244.	820.	567.	443.	799.	59.
ALL AGES	22672.	22735.	22086.	1748.	6306.	8906.	18143.	2396.	17053.	8190.	1865.	6632.	1884.
FEMALE													
5-14	44.	33.	14.	0.	23.	19.	7.	7.	10.	9.	0.	25.	7.
15-24	221.	59.	33.	0.	53.	93.	59.	26.	51.	21.	11.	12.	28.
25-44	278.	213.	357.	12.	87.	118.	193.	110.	246.	13.	18.	134.	0.
45-64	183.	291.	517.	0.	183.	179.	66.	12.	401.	100.	0.	74.	53.
64-OVER	5.	0.	3.	0.	0.	0.	0.	0.	0.	0.	0.	12.	0.
ALL AGES	735.	602.	933.	12.	347.	408.	324.	155.	707.	147.	29.	253.	88.

TOTAL HOURS OF USE (IN THOUSANDS)
PER YEAR OF TYPE OF TRACTORS IN OHIO
BY DAY OF WEEK

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO YEAR BUILT IN OHIO
BY DAY OF WEEK

DAY OF WEEK	TRACTOR TYPES: NARROW FRONT	CRAWLER	WIDE FRONT	ALL	TRACTORS ACCORDING TO YEAR BUILT: 1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
SUNDAY	1814.	62.	2641.	4477.	98.	93.	424.	807.	665.	625.	1556.	210.
MONDAY	6944.	79.	7777.	14796.	279.	261.	1112.	2516.	2122.	2452.	4995.	1058.
TUESDAY	6153.	56.	7212.	13531.	316.	244.	1027.	2097.	1929.	2269.	4605.	1046.
WEDNESDAY	5792.	44.	7139.	12964.	274.	244.	940.	1865.	1771.	2355.	4388.	1107.
THURSDAY	5724.	51.	6974.	12749.	284.	218.	983.	2067.	1859.	2222.	4059.	1052.
FRIDAY	5935.	72.	7543.	13551.	378.	305.	1046.	2176.	2042.	2106.	4344.	1151.
SATURDAY	5945.	42.	7485.	13472.	292.	247.	1083.	2069.	2012.	2308.	4338.	1102.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO FIEI HP CLASSES IN OHIO
BY DAY OF WEEK

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO MAKE IN OHIO
BY DAY OF WEEK

DAY OF WEEK	TRACTOR H.P. CLASSES: 9 TO 39	40 TO 59	60 TO 99	100 AND OVER	TRACTORS ACCORDING TO MAKE: ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASSEY FERG	MINN MOLINE	OLIVER	OTHERS
SUNDAY	1734.	1339.	1102.	56.	424.	661.	1011.	197.	926.	786.	77.	302.	94.
MONDAY	4638.	4525.	4470.	342.	1326.	1975.	3972.	524.	3680.	1382.	357.	1246.	355.
TUESDAY	4227.	4006.	4411.	340.	1045.	1656.	3451.	491.	3510.	1432.	306.	1227.	414.
WEDNESDAY	4167.	3796.	4203.	360.	979.	1503.	3142.	462.	3282.	1630.	345.	1333.	288.
THURSDAY	4166.	3841.	3982.	236.	1250.	1675.	3237.	520.	2915.	1271.	345.	1207.	277.
FRIDAY	4446.	4199.	4087.	358.	1190.	1830.	3524.	586.	3141.	1319.	338.	1292.	228.
SATURDAY	4540.	4237.	3884.	401.	1415.	1726.	3340.	506.	3060.	1562.	337.	1145.	380.

TOTAL HOURS OF USE (IN THOUSANDS)
PER YEAR OF TYPE OF TRACTORS IN OHIO
BY TYPE OF FARM

TYPE OF FARM	TRACTOR TYPES: NARROW FRONT	CRAWLER	WIDE FRONT	ALL
CASH CROP	7717.	27.	7529.	15273.
DAIRY	11891.	59.	13816.	25766.
LIVESTOCK	6822.	130.	7657.	14609.
FRUIT	203.	0.	390.	593.
GENERAL	8641.	156.	12697.	21494.
MULTIPLE	2344.	0.	4022.	6366.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO YEAR BUILT IN OHIO
BY TYPE OF FARM

TYPE OF FARM	TRACTORS ACCORDING TO YEAR BUILT: 1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
CASH CROP	284.	353.	1410.	2549.	2957.	1933.	4711.	841.
DAIRY	807.	476.	1834.	3620.	2950.	4406.	9432.	2240.
LIVESTOCK	145.	223.	1334.	3397.	2615.	2146.	3931.	816.
FRUIT	0.	0.	73.	233.	38.	106.	100.	37.
GENERAL	623.	445.	1185.	2941.	2690.	4173.	7307.	2429.
MULTIPLE	12.	69.	616.	632.	915.	1506.	2734.	253.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO FIEI HP CLASSES IN OHIO
BY TYPE OF FARM

TYPE OF FARM	TRACTOR H.P. CLASSES: 9 TO 39	40 TO 59	60 TO 99	100 AND OVER
CASH CROP	5276.	4598.	4802.	335.
DAIRY	8925.	9950.	7344.	551.
LIVESTOCK	5654.	3957.	3461.	136.
FRUIT	486.	77.	21.	0.
GENERAL	5345.	5420.	5656.	1015.
MULTIPLE	2131.	1527.	3010.	93.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO MAKE IN OHIO
BY TYPE OF FARM

TYPE OF FARM	TRACTORS ACCORDING TO MAKE: ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
CASH CROP	1711.	1569.	4107.	1064.	3195.	1330.	524.	1423.	151.
DAIRY	2552.	2359.	6583.	833.	5966.	2133.	921.	2325.	1048.
LIVESTOCK	1034.	2692.	4532.	402.	2351.	2303.	4.	617.	477.
FRUIT	21.	174.	166.	31.	122.	57.	0.	12.	11.
GENERAL	1093.	2627.	4395.	733.	6273.	2406.	565.	2237.	373.
MULTIPLE	963.	449.	1163.	239.	2538.	1048.	78.	369.	0.

TOTAL HOURS OF USE (IN THOUSANDS)
PER YEAR OF TYPE OF TRACTORS IN OHIO
BY ACREAGE

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO YEAR BUILT IN OHIO
BY ACREAGE

BY ACREAGE	TRACTOR TYPES: NARROW FRONT	CRAWLER	WIDE FRONT	ALL	TRACTORS ACCORDING TO YEAR BUILT: 1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
BELOW-50	752.	24.	1170.	1977.	33.	61.	533.	543.	292.	372.	9.	135.
50-99	4362.	1.	3986.	8349.	302.	193.	821.	2522.	1647.	776.	1554.	352.
100-199	9729.	102.	5647.	17378.	729.	498.	1961.	3940.	2722.	3337.	4466.	235.
200-499	15913.	225.	20538.	36271.	698.	458.	2403.	4545.	5611.	5450.	13792.	3277.
500-999	6547.	0.	11054.	17601.	60.	325.	332.	1490.	2025.	3034.	6835.	2352.
1000-ABOVE	964.	0.	1511.	2475.	0.	0.	13.	365.	47.	436.	1277.	336.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO FIEI HP CLASSES IN OHIO
BY ACREAGE

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO MAKE IN OHIO
BY ACREAGE

BY ACREAGE	TRACTOR H.P. CLASSES: 9 TO 39	40 TO 59	60 TO 99	100 AND OVER	TRACTORS ACCORDING TO MAKE: ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
BELOW-50	1520.	160.	65.	0.	243.	461.	531.	165.	263.	257.	2.	66.	50.
50-99	4054.	2371.	730.	0.	1091.	1591.	2001.	338.	1289.	1114.	263.	357.	255.
100-199	7107.	6326.	2671.	65.	1471.	2611.	3371.	764.	3642.	1989.	556.	2237.	637.
200-499	9279.	11315.	13716.	440.	3472.	4603.	8523.	1676.	9803.	3624.	565.	3544.	959.
500-999	3483.	5564.	7027.	1271.	1259.	2087.	5700.	210.	3968.	2188.	602.	1430.	158.
1000-ABOVE	439.	238.	1394.	362.	44.	61.	872.	71.	1339.	4.	7.	77.	0.

TOTAL HOURS OF USE (IN THOUSANDS)
PER YEAR OF TYPE OF TRACTORS IN OHIO
BY TRACTOR TYPES

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO YEAR BUILT IN OHIO
BY TRACTOR TYPES

TRACTOR TYPES	TRACTOR TYPES: NARROW FRONT	CRAWLER	WIDE FRONT	ALL	TRACTORS ACCORDING TO YEAR BUILT: 1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
ALLIS-CHAL	2735.	22.	4823.	7581.	280.	95.	430.	1623.	1346.	1009.	1369.	600.
FORD	1121.	0.	9634.	10755.	95.	84.	557.	2145.	1985.	1556.	3472.	832.
I. H.	15935.	11.	5507.	21743.	273.	503.	3348.	4330.	3151.	2675.	5237.	1193.
J. I. CASE	1579.	50.	1644.	3272.	178.	143.	342.	276.	633.	286.	594.	370.
JOHN DEERE	10021.	65.	10304.	20453.	558.	221.	932.	1745.	2016.	3736.	9192.	2046.
MASEY FREG	520.	24.	6666.	9311.	412.	35.	222.	1330.	1141.	2170.	3457.	793.
MIN MOLINE	971.	0.	1194.	2095.	23.	41.	114.	328.	335.	461.	591.	211.
OLIVER	4423.	137.	3103.	7667.	71.	47.	421.	960.	1260.	1725.	2911.	270.
OTHERS	333.	23.	1226.	2069.	17.	23.	49.	568.	445.	91.	502.	374.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO FIEI HP CLASSES IN OHIO
BY TRACTOR TYPES

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO MAKE IN OHIO
BY TRACTOR TYPES

TRACTOR TYPES	TRACTOR H.P. CLASSES: 0 TO 39	40 TO 59	60 TO 99	100 AND OVER	TRACTORS ACCORDING TO MAKE: ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
ALLIS-CHAL	2321.	3174.	1591.	199.	7581.	0.	0.	0.	0.	0.	0.	0.	0.
FORD	4155.	3045.	1743.	229.	0.	10755.	0.	0.	0.	0.	0.	0.	0.
I. H.	8604.	8809.	5464.	304.	0.	0.	21743.	0.	0.	0.	0.	0.	0.
J. I. CASE	1473.	865.	753.	73.	0.	0.	0.	3272.	0.	0.	0.	0.	0.
JOHN DEERE	5411.	2529.	11649.	328.	0.	0.	0.	0.	20453.	0.	0.	0.	0.
MASEY FREG	4130.	3795.	1212.	336.	0.	0.	0.	0.	0.	9311.	0.	0.	0.
MIN MOLINE	31.	792.	714.	19.	0.	0.	0.	0.	0.	0.	2095.	0.	0.
OLIVER	2643.	2155.	2650.	115.	0.	0.	0.	0.	0.	0.	0.	7667.	0.
OTHERS	351.	1106.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2039.

TOTAL HOURS OF USE (IN THOUSANDS)
PER YEAR OF TYPE OF TRACTORS IN OHIO
BY FUEL USED

FUEL USED	TRACTOR TYPES: NARROW FRONT	CRAWLER	WIDE FRONT	ALL
GASOLINE	27454.	93.	21918.	49465.
L.P.G.	33.	0.	30.	63.
DIESEL	10714.	237.	24738.	35690.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO YEAR BUILT IN OHIO
BY FUEL USED

FUEL USED	TRACTORS ACCORDING TO YEAR BUILT: 1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
GASOLINE	1246.	1604.	6589.	12664.	9748.	7434.	3821.	1359.
L.P.G.	0.	0.	0.	14.	0.	15.	33.	0.
DIESEL	839.	0.	0.	865.	2609.	6356.	19302.	5329.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO FEEI HP CLASSES IN OHIO
BY FUEL USED

FUEL USED	TRACTOR H.P. CLASSES: 8 TO 39	40 TO 59	60 TO 99	100 AND OVER
GASOLINE	24159.	17791.	4676.	11.
L.P.G.	7.	28.	28.	0.
DIESEL	3414.	6312.	21363.	2128.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO MAKE IN OHIO
BY FUEL USED

FUEL USED	TRACTORS ACCORDING TO MAKE: ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
GASOLINE	5626.	7066.	15839.	1911.	8354.	5324.	1267.	3649.	1129.
L.P.G.	0.	0.	42.	0.	1.	0.	20.	0.	0.
DIESEL	1955.	3897.	6894.	1361.	12109.	3982.	808.	3753.	930.

TOTAL HOURS OF USE (IN THOUSANDS)
PER YEAR OF TYPE OF TRACTORS IN OHIO
BY OWNERSHIP

OWNERSHIP	TRACTOR TYPES: NARROW FRONT	CRAWLER	WIDE FRONT	ALL
OWNED	37863.	339.	45966.	84165.
RENTED	54.	43.	150.	247.
BORROWED	273.	0.	623.	966.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO YEAR BUILT IN OHIO
BY OWNERSHIP

OWNERSHIP	TRACTORS ACCORDING TO YEAR BUILT: 1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
OWNED	1856.	1604.	6565.	13413.	12315.	14276.	27611.	6464.
RENTED	29.	0.	18.	29.	0.	0.	74.	97.
BORROWED	21.	0.	6.	151.	43.	8.	545.	126.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO FIXED HP CLASSES IN OHIO
BY OWNERSHIP

OWNERSHIP	TRACTOR H.P. CLASSES: 9 TO 39	40 TO 59	60 TO 99	100 AND OVER
OWNED	27383.	29346.	25471.	2139.
RENTED	156.	36.	54.	0.
BORROWED	83.	256.	595.	0.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO MAKE IN OHIO
BY OWNERSHIP

OWNERSHIP	TRACTORS ACCORDING TO MAKE: ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
OWNED	7573.	19748.	21593.	3127.	20101.	9243.	2095.	7568.	2059.
RENTED	0.	83.	0.	43.	83.	39.	0.	0.	0.
BORROWED	10.	154.	180.	102.	273.	25.	0.	156.	0.

TOTAL HOURS OF USE (IN THOUSANDS)
PER YEAR OF TYPE OF TRACTORS IN OHIO
BY SEX

	TRACTOR TYPES				TRACTORS ACCORDING TO YEAR BUILT							
SEX	NARROW FRONT	CRAWLER	WIDE FRONT	ALL	1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
MALE	37139.	350.	44854.	82403.	1770.	1553.	6529.	13101.	11981.	13841.	27102.	6520.
FEMALE	1324.	3.	1332.	2659.	137.	47.	60.	494.	376.	443.	1135.	167.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO YEAR BUILT IN OHIO
BY SEX

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO FIVE HP CLASSES IN OHIO
BY SEX

	TRACTOR H.P. CLASSES				TRACTORS ACCORDING TO MAKE								
SEX	9 TO 39	[illegible]	[illegible]	[illegible] AND OVER	ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASSEY FERG	MINN MOLINE	OLIVER	OTHERS
MALE	[illegible]	[illegible]	[illegible]	[illegible]	7233.	[illegible]	[illegible]	3980.	19653.	9195.	2038.	7432.	1971.
FEMALE	850.	743.	[illegible]	32.	347.	445.	910.	137.	782.	150.	56.	292.	88.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO MAKE IN OHIO
BY SEX

TOTAL HOURS OF USE (IN THOUSANDS)
PER YEAR OF TYPE OF TRACTORS IN OHIO
BY TIME SPENT WORKING ON FARM

TYPE OF FARMER	TRACTOR TYPES: NARROW FRONT	CRAWLER	WIDE FRONT	ALL
FULL TIME	32783.	249.	39100.	72133.
PART TIME	5443.	133.	7585.	13128.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO YEAR BUILT IN OHIO
BY TIME SPENT WORKING ON FARM

TYPE OF FARMER	TRACTORS ACCORDING TO YEAR BUILT: 1935-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
FULL TIME	1516.	1463.	5104.	11172.	16233.	12598.	23948.	6078.
PART TIME	398.	121.	1486.	2423.	2124.	1686.	4269.	609.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO FIVE HP CLASSES IN OHIO
BY TIME SPENT WORKING ON FARM

TYPE OF FARMER	TRACTOR H.P. CLASSES: 9 TO 39	40 TO 59	60 TO 99	100 AND OVER
FULL TIME	22061.	20703.	23833.	2128.
PART TIME	5540.	3436.	3063.	11.

TOTAL HOURS OF USE (IN THOUSANDS) PER YEAR OF
TRACTORS ACCORDING TO MAKE IN OHIO
BY TIME SPENT WORKING ON FARM

TYPE OF FARMER	TRACTORS ACCORDING TO MAKE: ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
FULL TIME	6355.	8443.	16722.	2351.	18178.	7552.	1906.	6889.	1736.
PART TIME	1226.	2542.	3054.	521.	2287.	1754.	137.	335.	323.

OHIO

Total Hours of Farm Machinery Use

TOTAL HOURS OF USE PER YEAR IN OHIO IN THOUSANDS BY MONTH

TRACTORS HITCHED TO

MONTH	TRACTORS NARROW	TRACTORS CRAWLER	TRACTORS WIDE	ALL TRACTORS	SELF-PROPELLED EQUIPMENT COMBINES CORN	COMBINES GRAIN	MOWER COND.	ALL SP-EQ	ALL SP-EQ + TRAC	PLANTING + TILLAGE EQUIP PLOWS	PLANTERS	ALL P+T EQUIP	FERT + CHEMICAL APPL EQUIP MANURE SPRDR	ANHYDR AMMO APPL	BOOM SPRAY	ALL F+C EQUIP
JAN.	1214.	0.	1278.	2492.	0.	0.	0.	38.	2530.	0.	0.	0.	1185.	0.	0.	1185.
FEB.	144.	0.	1449.	1594.	0.	0.	0.	0.	1594.	18.	0.	18.	645.	0.	0.	645.
MARCH	1351.	34.	3006.	4391.	0.	0.	0.	0.	4391.	778.	45.	823.	1516.	0.	0.	1516.
APRIL	4557.	20.	5940.	10517.	0.	0.	0.	0.	10517.	5251.	693.	5942.	597.	96.	48.	741.
MAY	4665.	38.	5415.	10118.	0.	0.	0.	0.	10118.	971.	2499.	3471.	547.	104.	326.	977.
JUNE	5139.	1.	5318.	10457.	0.	0.	0.	0.	10457.	209.	728.	937.	225.	123.	334.	732.
JULY	3254.	0.	3280.	6534.	0.	372.	0.	1041.	7575.	86.	13.	99.	268.	8.	76.	353.
AUG.	2052.	115.	2882.	5052.	0.	18.	0.	25.	5077.	435.	20.	456.	291.	0.	63.	354.
SEPT.	3194.	42.	2773.	6010.	74.	23.	0.	320.	6330.	307.	353.	660.	325.	0.	11.	337.
OCT.	3508.	0.	4022.	7528.	1203.	5.	0.	2511.	10039.	258.	390.	648.	314.	0.	0.	314.
NOV.	1951.	54.	3429.	5434.	1134.	0.	0.	1537.	6971.	531.	7.	539.	401.	103.	0.	504.
DEC.	737.	6.	1339.	2114.	131.	0.	0.	131.	2245.	119.	0.	119.	683.	3.	0.	663.
TOTAL	31863.	315.	40062.	72240.	2512.	419.	0.	5604.	77844.	8964.	4746.	13710.	7601.	434.	908.	8343.

TRACTORS HITCHED TO

MONTH	STATIONARY OR MATERIALS HANDLING EQUIPMENT FORAGE BLWRS	ELEVATORS	FORAGE WAGONS	ALL WAGONS	FR-END LOADER	BLADE SCRAPER	CHAIN SAW	ALL S M EQUIP	HARVESTING EQUIPMENT BALER	MOWER COND.	CORN PICKER	FORAGE HARVTER	ROTARY MOWERS	ALL HARVTNG
JAN.	0.	22.	0.	57.	431.	215.	0.	725.	19.	0.	0.	0.	60.	79.
FEB.	0.	0.	0.	355.	211.	64.	0.	629.	27.	0.	0.	0.	0.	27.
MARCH	0.	0.	0.	137.	656.	172.	0.	965.	0.	0.	0.	0.	0.	0.
APRIL	0.	0.	50.	55.	321.	29.	22.	457.	0.	0.	0.	19.	0.	19.
MAY	21.	3.	69.	247.	311.	73.	0.	601.	32.	15.	0.	32.	48.	130.
JUNE	199.	52.	257.	771.	161.	36.	0.	1219.	690.	159.	0.	377.	251.	1478.
JULY	35.	60.	65.	931.	131.	35.	0.	1263.	1221.	114.	0.	260.	185.	1790.
AUG.	45.	33.	70.	545.	254.	62.	0.	1070.	524.	100.	0.	312.	228.	1264.
SEPT.	561.	40.	452.	1388.	247.	109.	0.	2146.	202.	22.	94.	965.	147.	1430.
OCT.	339.	69.	193.	1655.	207.	131.	0.	2661.	41.	83.	1424.	403.	150.	2101.
NOV.	2.	127.	0.	858.	206.	182.	0.	1435.	15.	0.	982.	30.	372.	1449.
DEC.	0.	0.	27.	185.	393.	62.	0.	660.	0.	0.	41.	0.	61.	102.
TOTAL	1185.	431.	1212.	7246.	3600.	1256.	22.	13742.	2870.	497.	2541.	2456.	1536.	9069.

TOTAL HOURS OF USE IN THOUSANDS
PER YEAR IN OHIO BY DAY OF WEEK

TRACTORS HITCHED TO

DAY OF WEEK	TRACTORS NARROW	TRACTORS CRAWLER	TRACTORS WIDE	TRACTORS ALL TRACTORS	SELF-PROPELLED EQUIPMENT COMBINES CORN	COMBINES GRAIN	MOWER COND.	ALL SP-EQ	ALL SP-EQ + TRAC	PLANTING + TILLAGE EQUIP PLOWS	PLANTERS	ALL P+T EQUIP	FERT + CHEMICAL APPL EQUIP MANURE SPRDR	ANHYDR AMMO APPL	BOOM SPRAY	ALL F+C EQUIP
SUNDAY	1751.	32.	2585.	4369.	114.	34.	0.	252.	4621.	493.	221.	714.	457.	5.	67.	528.
MONDAY	4255.	46.	4782.	9083.	268.	16.	0.	514.	9597.	1493.	954.	2052.	996.	49.	130.	1179.
TUESDAY	4669.	33.	5777.	10478.	368.	36.	0.	787.	11265.	1327.	792.	2119.	884.	77.	130.	1090.
WEDNESDAY	5041.	40.	6597.	11638.	506.	105.	0.	1145.	12783.	1290.	631.	1927.	1134.	174.	113.	1357.
THURSDAY	5533.	31.	6774.	12358.	377.	95.	0.	1259.	13617.	1468.	629.	2097.	1091.	44.	151.	1286.
FRIDAY	5460.	72.	6969.	12532.	427.	98.	0.	1247.	13779.	1454.	962.	2417.	1145.	84.	148.	1378.
SATURDAY	5321.	42.	6789.	12152.	269.	39.	0.	625.	12777.	1472.	1006.	2478.	1343.	77.	161.	1582.

TRACTORS HITCHED TO

DAY OF WEEK	STATIONARY OR MATERIALS HANDLING EQUIPMENT ELEVATORS	FORAGE BLWRS	FORAGE WAGONS	ALL WAGONS	FR-END LOADER	BLADE SCRAPER	CHAIN SAW	ALL S M EQUIP	HARVESTING EQUIPMENT BALER	MOWER COND.	CORN PICKER	FORAGE HARVTER	ROTARY MOWERS	ALL HARVTNG
SUNDAY	24.	14.	75.	512.	211.	142.	0.	909.	179.	13.	192.	191.	81.	656.
MONDAY	168.	71.	155.	956.	353.	251.	0.	1598.	276.	79.	319.	307.	146.	1127.
TUESDAY	198.	67.	225.	1126.	373.	207.	0.	1874.	299.	120.	310.	386.	174.	1291.
WEDNESDAY	224.	94.	224.	1309.	667.	298.	0.	2514.	423.	62.	395.	416.	236.	1536.
THURSDAY	246.	61.	213.	1247.	604.	192.	23.	2402.	605.	82.	549.	421.	262.	1920.
FRIDAY	164.	71.	162.	1135.	616.	162.	0.	2235.	513.	46.	471.	309.	270.	1767.
SATURDAY	142.	45.	160.	1109.	705.	205.	0.	2260.	508.	94.	311.	373.	358.	1644.

TOTAL HOURS OF USE IN THOUSANDS
PER YEAR IN OHIO BY TYPE OF FARM

TRACTORS HITCHED TO

TYPE OF FARM	TRACTORS: NARROW	TRACTORS: CRAWLER	TRACTORS: WIDE	TRACTORS: ALL TRACTORS	SELF-PROPELLED EQUIPMENT: COMBINES CORN	SELF-PROPELLED EQUIPMENT: COMBINES GRAIN	SELF-PROPELLED EQUIPMENT: MOWER COND.	SELF-PROPELLED EQUIPMENT: ALL SP-EQ	ALL SP-EQ + TRAC	PLANTING + TILLAGE EQUIP: PLOWS	PLANTING + TILLAGE EQUIP: PLANTERS	PLANTING + TILLAGE EQUIP: ALL P+T EQUIP	FERT + CHEMICAL APPL EQUIP: MANURE SPRDR	FERT + CHEMICAL APPL EQUIP: ANHYDR AMMO APPL	FERT + CHEMICAL APPL EQUIP: BOOM SPRAY	FERT + CHEMICAL APPL EQUIP: ALL F+C EQUIP
CASH CROP	6114.	21.	6033.	12169.	448.	40.	0.	1453.	13655.	2449.	1159.	3699.	244.	57.	243.	545.
DAIRY	11959.	61.	12622.	23642.	653.	113.	0.	1425.	24967.	1749.	1491.	3240.	3449.	67.	266.	3803.
LIVESTOCK	5337.	83.	6545.	11964.	369.	20.	0.	498.	12463.	1097.	695.	1792.	1243.	12.	216.	1475.
FRUIT	162.	0.	286.	448.	0.	0.	0.	46.	493.	0.	0.	0.	0.	0.	7.	7.
GENERAL	6596.	152.	10711.	17459.	845.	182.	0.	1648.	19108.	1755.	1146.	2903.	1258.	236.	168.	1652.
MULTIPLE	2565.	0.	3529.	6094.	196.	63.	0.	438.	6531.	1890.	239.	2129.	779.	0.	24.	803.

TRACTORS HITCHED TO

TYPE OF FARM	STATIONARY OR MATERIALS HANDLING EQUIPMENT: FORAGE BLWRS	ELEVATORS	FORAGE WAGONS	ALL WAGONS	FR-END LOADER	BLADE SCRAPER	CHAIN SAW	ALL S M EQUIP	HARVESTING EQUIPMENT: BALER	MOWER COND.	CORN PICKER	FORAGE HARVTER	ROTARY MOWERS	ALL HARVTNG
CASH CROP	124.	43.	56.	634.	139.	22.	0.	1016.	282.	62.	525.	249.	310.	1428.
DAIRY	827.	193.	765.	2862.	1638.	895.	22.	6293.	990.	354.	528.	1712.	173.	3754.
LIVESTOCK	92.	133.	122.	1024.	744.	83.	4.	2032.	526.	42.	389.	166.	377.	1502.
FRUIT	0.	0.	0.	39.	0.	11.	0.	50.	23.	0.	0.	17.	13.	53.
GENERAL	133.	124.	167.	2293.	655.	168.	0.	3373.	751.	38.	809.	256.	528.	2382.
MULTIPLE	43.	18.	62.	436.	354.	77.	0.	927.	188.	0.	282.	37.	60.	566.

TOTAL HOURS OF USE IN THOUSANDS
PER YEAR IN OHIO BY OWNERSHIP

TRACTORS HITCHED TO

	TRACTORS				SELF-PROPELLED EQUIPMENT					PLANTING + TILLAGE EQUIP			FERT + CHEMICAL APPL EQUIP			
OWNERSHIP	NARROW	CRAWLER	WIDE	ALL TRACTORS	COMBINES CORN	COMBINES GRAIN	MOWER COND.	ALL SP-EQ	ALL SP-EQ + TRAC	PLOWS	PLANTERS	ALL P+T EQUIP	MANURE SPRDR	ANHYDR AMMO APPL	BOOM SPRAY	ALL F+C EQUIP
OWNED	31626.	273.	39432.	71333.	2512.	419.	0.	5604.	76937.	8719.	4601.	13319.	7001.	425.	894.	8321.
RENTED	45.	43.	107.	195.	0.	0.	0.	0.	195.	13.	17.	29.	0.	0.	0.	0.
BORROWED	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TRACTORS HITCHED TO

	STATIONARY OR MATERIALS HANDLING EQUIPMENT								HARVESTING EQUIPMENT					
OWNERSHIP	FORAGE BLWRS	ELEVATORS	FORAGE WAGONS	ALL WAGONS	FR-END LOADER	BLADE SCRAPER	CHAIN SAW	ALL S M EQUIP	BALER	MOWER COND.	CORN PICKER	FORAGE HARVTER	ROTARY MOWERS	ALL HARVTNG
OWNED	1168.	431.	1210.	7230.	3594.	1198.	22.	13664.	2823.	497.	2541.	2454.	1466.	9782.
RENTED	0.	0.	0.	9.	0.	57.	0.	66.	0.	0.	0.	0.	0.	0.
BORROWED	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TOTAL HOURS OF USE IN THOUSANDS
PER YEAR IN OHIO BY SEX

TRACTORS HITCHED TO

	TRACTORS				SELF-PROPELLED EQUIPMENT					PLANTING + TILLAGE EQUIP			FERT + CHEMICAL APPL EQUIP			
SEX	NARROW	CRAWLER	WIDE	ALL TRACTORS	COMBINES CORN	COMBINES GRAIN	MOWER COND.	ALL SP-EQ	ALL SP-EQ + TRAC	PLOWS	PLANTERS	ALL P+T EQUIP	MANURE SPRDR	ANHYDR AMMO APPL	BOOM SPRAY	ALL F+C EQUIP
MALE	31071.	313.	38439.	69883.	2512.	419.	0.	5604.	75487.	8564.	4719.	13333.	6952.	434.	938.	8294.
FEMALE	664.	3.	1460.	2146.	0.	0.	0.	0.	2146.	284.	14.	297.	49.	0.	0.	49.

TRACTORS HITCHED TO

	STATIONARY OR MATERIALS HANDLING EQUIPMENT								HARVESTING EQUIPMENT					
SEX	FORAGE BLWRS	ELEVATORS	FORAGE WAGONS	ALL WAGONS	FR-END LOADER	BLADE SCRAPER	CHAIN SAW	ALL S M EQUIP	BALER	MOWER COND.	CORN PICKER	FORAGE HARVTER	ROTARY MOWERS	ALL HARVTNG
MALE	1069.	386.	1210.	6995.	3537.	1256.	22.	13237.	2458.	491.	2477.	2411.	1490.	9366.
FEMALE	0.	9.	3.	248.	34.	0.	0.	249.	372.	7.	64.	41.	16.	499.

OHIO

Tractors on Public Roads

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TYPE OF TRACTORS IN OHIO
BY HIRED LABOR

AGE + SEX OF OPERATR	NARROW FRONT	CRAWLER	WIDE FRONT	ALL
MALE				
5-14	6.	0.	5.	11.
15-24	76.	0.	39.	114.
25-44	31.	0.	30.	61.
45-64	41.	0.	89.	129.
65-OVER	7.	0.	5.	12.
ALL AGES	161.	1.	167.	328.
FEMALE				
5-14	0.	0.	0.	0.
15-24	0.	0.	0.	0.
25-44	0.	0.	0.	0.
45-64	0.	0.	0.	0.
65-OVER	0.	0.	0.	0.
ALL AGES	0.	0.	0.	0.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO YEAR BUILT IN OHIO
BY HIRED LABOR

AGE + SEX OF OPERATR	1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
MALE								
5-14	0.	0.	0.	6.	4.	0.	2.	0.
15-24	3.	8.	15.	22.	17.	16.	30.	3.
25-44	6.	6.	10.	3.	3.	15.	24.	1.
45-64	4.	3.	9.	25.	2.	31.	42.	21.
65-OVER	0.	1.	4.	2.	0.	2.	3.	0.
ALL AGES	13.	9.	34.	58.	26.	64.	100.	25.
FEMALE								
5-14	0.	0.	0.	0.	0.	0.	0.	0.
15-24	0.	0.	0.	0.	0.	0.	0.	0.
25-44	0.	0.	0.	0.	0.	0.	0.	0.
45-64	0.	0.	0.	0.	0.	0.	0.	0.
65-OVER	0.	0.	0.	0.	0.	0.	0.	0.
ALL AGES	0.	0.	0.	0.	0.	0.	0.	0.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO FIXED HP CLASSES IN OHIO
BY HIRED LABOR

AGE + SEX OF OPERATR	3 TO 39	40 TO 59	60 TO 99	100 AND OVER
MALE				
5-14	6.	5.	0.	0.
15-24	32.	57.	24.	0.
25-44	17.	15.	27.	0.
45-64	34.	35.	33.	30.
65-OVER	7.	2.	2.	0.
ALL AGES	96.	115.	83.	30.
FEMALE				
5-14	0.	0.	0.	0.
15-24	0.	0.	0.	0.
25-44	0.	0.	0.	0.
45-64	0.	0.	0.	0.
65-OVER	0.	0.	0.	0.
ALL AGES	0.	0.	0.	0.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO MAKE IN OHIO
BY HIRED LABOR

AGE + SEX OF OPERATR	ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
MALE									
5-14	2.	5.	5.	0.	0.	0.	0.	0.	0.
15-24	4.	7.	62.	0.	23.	10.	0.	12.	4.
25-44	6.	3.	31.	0.	19.	1.	0.	0.	0.
45-64	0.	33.	37.	0.	6.	16.	0.	32.	0.
65-OVER	1.	0.	3.	0.	3.	0.	2.	0.	0.
ALL AGES	12.	52.	139.	0.	49.	27.	2.	44.	4.
FEMALE									
5-14	0.	0.	0.	0.	0.	0.	0.	0.	0.
15-24	0.	0.	0.	0.	0.	0.	0.	0.	0.
25-44	0.	0.	0.	0.	0.	0.	0.	0.	0.
45-64	0.	0.	0.	0.	0.	0.	0.	0.	0.
65-OVER	0.	0.	0.	0.	0.	0.	0.	0.	0.
ALL AGES	0.	0.	0.	0.	0.	0.	0.	0.	0.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TYPE OF TRACTORS IN OHIO BY FAMILY LABOR

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO YEAR BUILT IN OHIO BY FAMILY LABOR

AGE + SEX OF OPERATR	TRACTOR TYPES: NARROW FRONT	CRAWLER	WIDE FRONT	ALL	TRACTORS ACCORDING TO YEAR BUILT: 1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
MALE												
5-14	24.	0.	45.	69.	0.	1.	2.	3.	10.	13.	35.	5.
15-24	248.	0.	233.	481.	0.	10.	59.	102.	54.	80.	107.	75.
25-44	310.	2.	313.	625.	7.	8.	41.	104.	69.	129.	222.	35.
45-64	395.	0.	355.	750.	14.	7.	48.	161.	130.	[illegible]	238.	53.
65-OVER	82.	0.	43.	125.	3.	7.	14.	19.	32.	33.	16.	1.
ALL AGES	1348.	2.	989.	2339.	24.	34.	164.	388.	296.	355.	611.	163.
FEMALE												
5-14	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
15-24	8.	0.	1.	9.	0.	0.	7.	0.	1.	1.	0.	0.
25-44	6.	0.	10.	16.	0.	0.	0.	1.	2.	2.	9.	2.
45-64	20.	0.	54.	74.	0.	0.	0.	2.	10.	5.	56.	0.
65-OVER	0.	0.	1.	1.	0.	0.	0.	0.	1.	0.	0.	0.
ALL AGES	34.	0.	67.	101.	0.	0.	7.	4.	14.	9.	65.	2.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO FIEI HP CLASSES IN OHIO BY FAMILY LABOR

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO MAKE IN OHIO BY FAMILY LABOR

AGE + SEX OF OPERATR	TRACTOR H.P. CLASSES: 0 TO 39	40 TO 59	60 TO 99	100 AND OVER	TRACTORS ACCORDING TO MAKE: ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
MALE													
5-14	21.	14.	30.	0.	5.	3.	12.	1.	22.	15.	0.	6.	3.
15-24	157.	152.	132.	14.	43.	57.	171.	5.	91.	24.	20.	29.	37.
25-44	179.	184.	210.	16.	51.	51.	215.	16.	171.	47.	10.	42.	9.
45-64	274.	233.	219.	5.	77.	105.	174.	10.	161.	64.	6.	111.	35.
65-OVER	47.	32.	29.	0.	10.	25.	41.	5.	13.	7.	13.	9.	1.
ALL AGES	677.	615.	642.	35.	167.	241.	615.	46.	459.	159.	49.	193.	65.
FEMALE													
5-14	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
15-24	1.	7.	1.	0.	0.	1.	7.	0.	0.	0.	0.	0.	0.
25-44	4.	2.	10.	0.	0.	3.	3.	0.	5.	0.	0.	5.	0.
45-64	2.	9.	53.	0.	6.	11.	0.	0.	52.	2.	0.	1.	2.
65-OVER	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
ALL AGES	9.	13.	65.	0.	7.	15.	10.	0.	57.	2.	0.	7.	3.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TYPE OF TRACTORS IN OHIO BY DAY OF WEEK

DAY OF WEEK	TRACTOR TYPES: NARROW FRONT	CRAWLER	WIDE FRONT	ALL
SUNDAY	43.	1.	100.	149.
MONDAY	214.	3.	201.	419.
TUESDAY	214.	6.	189.	392.
WEDNESDAY	222.	3.	186.	408.
THURSDAY	214.	3.	185.	389.
FRIDAY	203.	1.	178.	381.
SATURDAY	192.	0.	214.	396.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO YEAR BUILT IN OHIO BY DAY OF WEEK

DAY OF WEEK	TRACTORS ACCORDING TO YEAR BUILT: 1935-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
SUNDAY	3.	1.	11.	20.	19.	23.	56.	19.
MONDAY	3.	5.	46.	66.	43.	57.	119.	32.
TUESDAY	8.	11.	39.	74.	62.	60.	114.	25.
WEDNESDAY	5.	6.	37.	61.	68.	71.	141.	20.
THURSDAY	10.	6.	26.	72.	63.	58.	117.	29.
FRIDAY	6.	13.	25.	83.	45.	62.	103.	41.
SATURDAY	5.	4.	26.	57.	52.	83.	139.	30.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO FIEI HP CLASSES IN OHIO BY DAY OF WEEK

DAY OF WEEK	TRACTOR H.P. CLASSES: 9 TO 39	40 TO 59	60 TO 99	100 AND OVER
SUNDAY	43.	36.	58.	2.
MONDAY	135.	146.	122.	13.
TUESDAY	139.	111.	116.	12.
WEDNESDAY	113.	136.	129.	13.
THURSDAY	142.	118.	120.	9.
FRIDAY	126.	125.	111.	7.
SATURDAY	111.	120.	143.	13.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO MAKE IN OHIO BY DAY OF WEEK

DAY OF WEEK	TRACTORS ACCORDING TO MAKE: ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
SUNDAY	7.	21.	36.	2.	51.	22.	0.	7.	2.
MONDAY	41.	55.	135.	9.	90.	27.	10.	41.	16.
TUESDAY	32.	49.	107.	7.	99.	23.	6.	48.	20.
WEDNESDAY	25.	48.	124.	12.	103.	25.	13.	44.	14.
THURSDAY	36.	54.	96.	25.	83.	25.	8.	46.	17.
FRIDAY	26.	43.	138.	9.	80.	29.	12.	33.	11.
SATURDAY	46.	49.	139.	5.	66.	41.	6.	31.	13.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TYPE OF TRACTORS IN OHIO
BY TYPE OF FARM

TYPE OF FARM	TRACTOR TYPES: NARROW FRONT	CRAWLER	WIDE FRONT	ALL
CASH CROP	104.	0.	183.	332.
DAIRY	548.	1.	519.	1,068.
LIVESTOCK	199.	0.	202.	401.
FRUIT	8.	0.	4.	12.
GENERAL	270.	2.	267.	539.
MULTIPLE	91.	0.	79.	169.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO YEAR BUILT IN OHIO
BY TYPE OF FARM

TYPE OF FARM	TRACTORS ACCORDING TO YEAR BUILT: 1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
CASH CROP	3.	2.	12.	59.	66.	66.	108.	15.
DAIRY	24.	18.	107.	186.	87.	152.	392.	99.
LIVESTOCK	3.	3.	39.	91.	91.	65.	89.	20.
FRUIT	0.	0.	4.	7.	0.	0.	1.	1.
GENERAL	8.	20.	28.	95.	91.	106.	132.	59.
MULTIPLE	1.	3.	22.	12.	21.	41.	59.	1.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO FIVE HP CLASSES IN OHIO
BY TYPE OF FARM

TYPE OF FARM	TRACTOR H.P. CLASSES: 9 TO 39	40 TO 59	60 TO 99	100 AND OVER
CASH CROP	98.	99.	124.	6.
DAIRY	246.	372.	372.	44.
LIVESTOCK	176.	146.	82.	5.
FRUIT	10.	1.	1.	0.
GENERAL	206.	156.	154.	5.
MULTIPLE	58.	34.	60.	5.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO MAKE IN OHIO
BY TYPE OF FARM

TYPE OF FARM	TRACTORS ACCORDING TO MAKE: ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
CASH CROP	33.	23.	77.	36.	66.	9.	19.	56.	11.
DAIRY	85.	119.	309.	16.	216.	64.	24.	113.	53.
LIVESTOCK	43.	67.	115.	9.	62.	50.	6.	19.	20.
FRUIT	1.	2.	4.	0.	5.	0.	0.	0.	1.
GENERAL	32.	90.	177.	5.	124.	45.	6.	53.	8.
MULTIPLE	9.	11.	28.	3.	74.	20.	5.	9.	0.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TYPE OF TRACTORS IN OHIO BY ACREAGE

BY ACREAGE	TRACTOR TYPES: NARROW FRONT	CRAWLER	WIDE FRONT	ALL
BELOW-50	19.	0.	26.	48.
51-99	111.	0.	73.	185.
100-199	264.	0.	210.	474.
200-499	564.	0.	632.	1196.
500-999	282.	0.	312.	594.
1000-ABOVE	43.	0.	25.	67.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO YEAR BUILT IN OHIO BY ACREAGE

BY ACREAGE	TRACTORS ACCORDING TO YEAR BUILT: 1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
BELOW-50	3.	2.	14.	14.	5.	9.	0.	2.
51-99	5.	3.	13.	64.	50.	13.	24.	14.
100-199	9.	4.	77.	94.	83.	109.	97.	1.
200-499	22.	14.	66.	176.	151.	201.	434.	124.
500-999	0.	25.	37.	76.	72.	89.	222.	54.
1000-ABOVE	0.	0.	1.	21.	0.	9.	34.	3.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO FUEL HP CLASSES IN OHIO BY ACREAGE

BY ACREAGE	TRACTOR H.P. CLASSES: 0 TO 39	40 TO 59	60 TO 99	100 AND OVER
BELOW-50	41.	0.	6.	0.
51-99	86.	76.	14.	0.
100-199	214.	176.	73.	1.
200-499	263.	325.	477.	15.
500-999	122.	197.	243.	41.
1000-ABOVE	25.	5.	28.	8.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO MAKE IN OHIO BY ACREAGE

BY ACREAGE	TRACTORS ACCORDING TO MAKE: ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
BELOW-50	6.	8.	15.	3.	3.	9.	0.	2.	0.
51-99	23.	27.	52.	27.	16.	16.	3.	9.	14.
100-199	43.	68.	112.	14.	107.	42.	15.	51.	20.
200-499	96.	126.	319.	15.	334.	76.	24.	131.	34.
500-999	43.	61.	210.	1.	97.	47.	11.	61.	25.
1000-ABOVE	3.	1.	43.	2.	12.	0.	0.	0.	0.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TYPE OF TRACTORS IN OHIO
BY TRACTOR TYPES

TRACTOR TYPES	NARROW FRONT	CRAWLER	WIDE FRONT	ALL
ALLIS-CHAL	71.	0.	142.	212.
FORD	25.	0.	279.	306.
I. H.	565.	0.	206.	771.
J. I. CASE	43.	0.	17.	60.
JOHN DEERE	319.	0.	261.	570.
MASEY FERG	15.	2.	174.	191.
MIN MOLINE	26.	0.	28.	54.
OLIVER	172.	0.	82.	252.
OTHERS	46.	0.	46.	93.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO YEAR BUILT IN OHIO
BY TRACTOR TYPES

TRACTOR TYPES	1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
ALLIS-CHAL	6.	2.	10.	42.	21.	45.	65.	21.
FORD	2.	3.	16.	38.	71.	50.	86.	43.
I. H.	8.	20.	131.	190.	101.	95.	162.	63.
J. I. CASE	0.	0.	7.	5.	32.	9.	5.	5.
JOHN DEERE	10.	20.	22.	44.	78.	93.	267.	35.
MASEY FERG	10.	0.	9.	8.	20.	52.	84.	9.
MIN MOLINE	0.	0.	3.	4.	5.	19.	20.	4.
OLIVER	2.	0.	11.	63.	16.	61.	85.	11.
OTHERS	0.	0.	1.	53.	16.	9.	11.	4.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO FIXED HP CLASSES IN OHIO
BY TRACTOR TYPES

TRACTOR TYPES	9 TO 39	40 TO 59	60 TO 99	100 AND OVER
ALLIS-CHAL	49.	97.	61.	4.
FORD	116.	91.	96.	32.
I. H.	211.	341.	177.	11.
J. I. CASE	24.	23.	6.	6.
JOHN DEERE	187.	59.	334.	4.
MASEY FERG	83.	84.	43.	4.
MIN MOLINE	1.	21.	24.	5.
OLIVER	107.	55.	89.	0.
OTHERS	27.	49.	3.	0.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO MAKE IN OHIO
BY TRACTOR TYPES

TRACTOR TYPES	ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
ALLIS-CHAL	212.	0.	0.	0.	0.	0.	0.	0.	0.
FORD	0.	306.	0.	0.	0.	0.	0.	0.	0.
I. H.	0.	0.	771.	0.	0.	0.	0.	0.	0.
J. I. CASE	0.	0.	0.	60.	0.	0.	0.	0.	0.
JOHN DEERE	0.	0.	0.	0.	570.	0.	0.	0.	0.
MASEY FERG	0.	0.	0.	0.	0.	191.	0.	0.	0.
MIN MOLINE	0.	0.	0.	0.	0.	0.	54.	0.	0.
OLIVER	0.	0.	0.	0.	0.	0.	0.	252.	0.
OTHERS	0.	0.	0.	0.	0.	0.	0.	0.	93.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TYPE OF TRACTORS IN OHIO BY FUEL USED

FUEL USED	NARROW FRONT	CRAWLER	WIDE FRONT	ALL
GASOLINE	975.	0.	590.	1565.
L.P.G.	4.	0.	2.	6.
DIESEL	299.	2.	656.	956.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO YEAR BUILT IN OHIO BY FUEL USED

FUEL USED	1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
GASOLINE	25.	46.	214.	418.	317.	241.	256.	46.
L.P.G.	0.	0.	0.	4.	0.	0.	2.	0.
DIESEL	13.	0.	0.	30.	44.	192.	528.	148.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO FIEI HP CLASSES IN OHIO BY FUEL USED

FUEL USED	9 TO 39	40 TO 59	60 TO 99	100 AND OVER
GASOLINE	727.	690.	172.	0.
L.P.G.	0.	4.	2.	0.
DIESEL	72.	187.	622.	65.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO MAKE IN OHIO BY FUEL USED

FUEL USED	ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
GASOLINE	158.	191.	552.	49.	261.	108.	28.	149.	69.
L.P.G.	0.	0.	2.	0.	0.	0.	4.	0.	0.
DIESEL	54.	127.	217.	16.	309.	83.	23.	105.	23.

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TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TYPE OF TRACTORS IN OHIO BY OWNERSHIP

	TRACTOR TYPES				TRACTORS ACCORDING TO YEAR BUILT							
OWNERSHIP	NARROW FRONT	CRAWLER	WIDE FRONT	ALL	1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
OWNED	1263.	2.	1231.	2497.	38.	46.	213.	449.	359.	433.	772.	187.
RENTED	3.	0.	2.	5.	0.	0.	1.	0.	0.	0.	1.	3.
BORROWED	18.	0.	14.	25.	0.	0.	1.	2.	2.	1.	14.	5.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO FIELD HP CLASSES IN OHIO BY OWNERSHIP

	TRACTOR H.P. CLASSES				TRACTORS ACCORDING TO MAKE								
OWNERSHIP	0 TO 39	40 TO 59	60 TO 99	100 AND OVER	ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASSEY FERG	MINN MOLINE	OLIVER	OTHERS
OWNED	792.	772.	761.	65.	211.	317.	751.	64.	564.	166.	54.	247.	92.
RENTED	1.	1.	3.	0.	0.	1.	3.	0.	3.	1.	0.	0.	0.
BORROWED	6.	7.	13.	0.	0.	0.	10.	1.	2.	4.	0.	7.	0.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TYPE OF TRACTORS IN OHIO
BY SEX

SEX	TRACTOR TYPES: NARROW FRONT	CRAWLER	WIDE FRONT	ALL
MALE	1241.	2.	1178.	2420.
FEMALE	37.	0.	70.	106.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO YEAR BUILT IN OHIO
BY SEX

SEX	TRACTORS ACCORDING TO YEAR BUILT: 1936-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
MALE	38.	46.	265.	448.	346.	424.	721.	193.
FEMALE	0.	0.	9.	4.	16.	9.	66.	2.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO FIVE HP CLASSES IN OHIO
BY SEX

SEX	TRACTOR H.P. CLASSES: 9 TO 39	40 TO 65	66 TO 99	100 AND OVER
MALE	799.	781.	730.	65.
FEMALE	11.	15.	65.	0.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO MAKE IN OHIO
BY SEX

SEX	TRACTORS ACCORDING TO MAKE: ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASSEY FERG	MINN MOLINE	OLIVER	OTHERS
MALE	205.	334.	769.	64.	512.	187.	54.	246.	89.
FEMALE	7.	15.	11.	0.	58.	4.	0.	8.	3.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TYPE OF TRACTORS IN OHIO BY TIME SPENT WORKING ON FARM

TYPE OF FARMER	TRACTOR TYPES: NARROW FRONT	CRAWLER	WIDE FRONT	ALL
FULL TIME	1151.	0.	1065.	2216.
PART TIME	125.	2.	183.	311.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO YEAR BUILT IN OHIO BY TIME SPENT WORKING ON FARM

TYPE OF FARMER	TRACTORS ACCORDING TO YEAR BUILT: 1930-39	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-71
FULL TIME	33.	45.	193.	396.	290.	375.	692.	187.
PART TIME	1.	1.	21.	56.	71.	59.	95.	6.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO FIXED HP CLASSES IN OHIO BY TIME SPENT WORKING ON FARM

TYPE OF FARMER	TRACTOR H.P. CLASSES: 8 TO 39	40 TO 59	60 TO 99	100 AND OVER
FULL TIME	672.	696.	715.	65.
PART TIME	127.	83.	77.	8.

TOTAL HOURS ON PUBLIC ROADS (IN THOUSANDS) PER YEAR OF TRACTORS ACCORDING TO MAKE IN OHIO BY TIME SPENT WORKING ON FARM

TYPE OF FARMER	TRACTORS ACCORDING TO MAKE: ALLIS CHALMERS	FORD	I.H.	CASE	JOHN DEERE	MASEY FERG	MINN MOLINE	OLIVER	OTHERS
FULL TIME	176.	266.	721.	40.	506.	146.	53.	231.	77.
PART TIME	36.	52.	50.	25.	63.	45.	1.	23.	15.

OHIO

Farm Machinery on Public Roads

TOTAL HOURS ON PUBLIC ROADS IN THOUSANDS
PER YEAR IN OHIO BY MONTH

TRACTORS HITCHED TO

MONTH	TRACTORS NARROW	TRACTORS CRAWLER	TRACTORS WIDE	TRACTORS ALL TRACTORS	SELF-PROPELLED EQUIPMENT COMBINES CORN	COMBINES GRAIN	MOWER COND.	ALL SP-EQ	ALL SP-EQ + TRAC	PLANTING + TILLAGE EQUIP PLOWS	PLANTERS	ALL P+T EQUIP	FERT + CHEMICAL APPL EQUIP MANURE SPRDR	ANHYDR AMMO APPL	BOOM SPRAY	ALL F+C EQUIP
JAN.	45.	0.	49.	96.	0.	0.	0.	3.	99.	0.	0.	0.	64.	0.	0.	64.
FEB.	7.	0.	30.	38.	0.	0.	0.	0.	38.	1.	0.	1.	7.	0.	0.	7.
MARCH	64.	0.	98.	162.	0.	0.	0.	0.	162.	16.	4.	20.	86.	0.	0.	86.
APRIL	93.	0.	104.	196.	0.	0.	0.	0.	196.	75.	10.	85.	9.	1.	3.	13.
MAY	125.	0.	107.	232.	0.	0.	0.	0.	232.	21.	40.	61.	23.	2.	20.	44.
JUNE	160.	0.	126.	293.	0.	0.	0.	0.	293.	3.	14.	17.	8.	5.	13.	26.
JULY	132.	0.	88.	221.	0.	12.	0.	29.	249.	1.	0.	2.	7.	0.	4.	11.
AUG.	81.	2.	112.	195.	0.	1.	0.	3.	198.	7.	0.	7.	11.	0.	0.	11.
SEPT.	127.	0.	78.	206.	1.	1.	0.	7.	205.	4.	3.	7.	15.	0.	2.	16.
OCT.	198.	0.	155.	352.	14.	0.	0.	46.	398.	2.	7.	9.	9.	0.	0.	9.
NOV.	66.	0.	91.	158.	11.	0.	0.	15.	172.	14.	0.	14.	10.	0.	0.	10.
DEC.	32.	0.	24.	56.	4.	0.	0.	4.	60.	0.	0.	0.	31.	0.	0.	31.
TOTAL	1140.	2.	1055.	2196.	30.	15.	0.	106.	2302.	145.	79.	225.	279.	7.	42.	328.

TRACTORS HITCHED TO

MONTH	STATIONARY OR MATERIALS HANDLING EQUIPMENT FORAGE BLWRS	ELEVATORS	FORAGE WAGONS	ALL WAGONS	FR-END LOADER	BLADE SCRAPER	CHAIN SAW	ALL S M EQUIP	HARVESTING EQUIPMENT BALER	MOWER COND.	CORN PICKER	FORAGE HARVTER	ROTARY MOWERS	ALL HARVTNG
JAN.	0.	1.	0.	5.	5.	0.	0.	10.	3.	0.	0.	0.	0.	3.
FEB.	0.	0.	0.	5.	0.	0.	0.	5.	22.	0.	0.	0.	0.	22.
MARCH	0.	0.	0.	7.	0.	1.	0.	8.	0.	0.	0.	0.	0.	0.
APRIL	0.	0.	11.	19.	2.	1.	0.	22.	0.	0.	0.	0.	0.	0.
MAY	0.	0.	7.	29.	3.	1.	0.	32.	0.	0.	0.	1.	2.	4.
JUNE	0.	1.	40.	91.	2.	0.	0.	95.	17.	2.	0.	9.	3.	31.
JULY	0.	1.	0.	85.	0.	0.	0.	50.	26.	3.	0.	4.	1.	34.
AUG.	0.	1.	4.	54.	4.	1.	0.	60.	35.	5.	0.	7.	5.	46.
SEPT.	4.	0.	46.	76.	7.	9.	0.	96.	6.	0.	3.	25.	5.	39.
OCT.	7.	0.	34.	254.	0.	1.	0.	262.	1.	0.	16.	8.	4.	30.
NOV.	0.	1.	0.	77.	1.	0.	0.	79.	1.	0.	13.	2.	6.	24.
DEC.	0.	0.	2.	17.	2.	1.	0.	20.	0.	0.	0.	0.	0.	1.
TOTAL	11.	4.	142.	721.	25.	14.	0.	776.	105.	11.	33.	57.	27.	234.

TOTAL HOURS ON PUBLIC ROADS IN THOUSANDS
PER YEAR IN OHIO BY DAY OF WEEK

TRACTORS HITCHED TO

DAY OF WEEK	TRACTORS				SELF-PROPELLED EQUIPMENT					PLANTING + TILLAGE EQUIP			FERT + CHEMICAL APPL EQUIP			
	NARROW	CRAWLER	WIDE	ALL TRACTORS	COMBINES CORN	COMBINES GRAIN	MOWER COND.	ALL SP-EQ	ALL SP-EQ + TRAC	PLOWS	PLANTERS	ALL P+T EQUIP	MANURE SPRDR	ANHYDR AMMO APPL	BOOM SPRAY	ALL F+C EQUIP
SUNDAY	46.	1.	35.	146.	1.	1.	0.	4.	150.	16.	6.	22.	14.	0.	2.	16.
MONDAY	166.	0.	107.	273.	2.	1.	0.	8.	281.	24.	8.	32.	45.	0.	5.	52.
TUESDAY	169.	0.	143.	312.	3.	1.	0.	12.	324.	16.	10.	27.	43.	1.	4.	48.
WEDNESDAY	212.	0.	171.	382.	7.	4.	0.	28.	410.	21.	11.	31.	44.	2.	4.	50.
THURSDAY	195.	0.	178.	373.	12.	4.	0.	26.	399.	13.	13.	27.	29.	2.	9.	40.
FRIDAY	189.	1.	166.	356.	3.	4.	0.	20.	376.	22.	17.	39.	45.	1.	10.	55.
SATURDAY	167.	0.	199.	367.	3.	1.	0.	8.	375.	34.	15.	48.	59.	0.	10.	69.

TRACTORS HITCHED TO

DAY OF WEEK	STATIONARY OR MATERIALS HANDLING EQUIPMENT							HARVESTING EQUIPMENT					
	FORAGE BLWRS	ELEVA TORS	FORAGE WAGONS	ALL WAGONS	FR-END LOADER	BLADE SCRAPER	CHAIN SAW	ALL S M EQUIP	BALER	MOWER COND.	CORN PICKER	FORAGE HARVTER	ROTARY MOWERS	ALL HARVTNG
SUNDAY	0.	0.	0.	34.	0.	1.	0.	35.	28.	0.	3.	5.	0.	36.
MONDAY	0.	0.	30.	96.	4.	1.	0.	103.	9.	1.	2.	6.	3.	21.
TUESDAY	0.	0.	28.	112.	2.	4.	0.	118.	10.	3.	5.	6.	3.	28.
WEDNESDAY	3.	2.	23.	143.	5.	3.	0.	156.	11.	3.	4.	10.	4.	32.
THURSDAY	7.	2.	20.	121.	4.	2.	0.	135.	15.	2.	7.	9.	7.	40.
FRIDAY	0.	1.	19.	114.	3.	2.	0.	119.	17.	1.	7.	10.	4.	38.
SATURDAY	0.	0.	16.	103.	6.	3.	0.	113.	16.	2.	5.	12.	6.	40.

TOTAL HOURS ON PUBLIC ROADS IN THOUSANDS
PER YEAR IN OHIO BY TYPE OF FARM

TRACTORS MITCHED TO

TYPE OF FARM	TRACTORS NARROW	TRACTORS CRAWLER	TRACTORS WIDE	TRACTORS ALL TRACTORS	SELF-PROPELLED EQUIPMENT COMBINES CORN	COMBINES GRAIN	MOWER COND.	ALL SP-EQ	ALL SP-EQ + TRAC	PLANTING + TILLAGE EQUIP PLOWS	PLANTERS	ALL P+T EQUIP	FERT + CHEMICAL APPL EQUIP MANURE SPRDR	ANHYDR AMMO APPL	BOOM SPRAY	ALL F+C EQUIP
CASH CROP	151.	0.	132.	283.	3.	2.	0.	24.	307.	39.	12.	52.	3.	3.	4.	9.
DAIRY	522.	0.	457.	979.	11.	4.	0.	39.	1018.	41.	28.	69.	190.	1.	23.	214.
LIVESTOCK	161.	0.	160.	321.	7.	1.	0.	9.	330.	13.	20.	33.	34.	1.	7.	42.
FRUIT	8.	0.	4.	11.	0.	0.	0.	0.	11.	0.	0.	0.	0.	0.	0.	0.
GENERAL	221.	2.	218.	440.	5.	6.	0.	24.	465.	21.	17.	37.	14.	2.	6.	23.
MULTIPLE	75.	0.	74.	148.	4.	2.	0.	9.	157.	31.	3.	33.	37.	0.	0.	38.

TRACTORS MITCHED TO

TYPE OF FARM	STATIONARY OR MATERIALS HANDLING EQUIPMENT FORAGE BLWRS	ELEVATORS	FORAGE WAGONS	ALL WAGONS	FR-END LOADER	BLADE SCRAPER	CHAIN SAW	ALL S M EQUIP	HARVESTING EQUIPMENT BALER	MOWER COND.	CORN PICKER	FORAGE HARVTER	ROTARY MOWERS	ALL HARVTNG
CASH CROP	7.	1.	1.	92.	1.	3.	4.	102.	11.	2.	9.	5.	3.	29.
DAIRY	4.	3.	135.	348.	11.	4.	0.	378.	63.	7.	8.	47.	6.	131.
LIVESTOCK	0.	0.	3.	55.	5.	7.	0.	67.	12.	1.	3.	3.	2.	21.
FRUIT	0.	0.	0.	4.	0.	0.	0.	4.	0.	0.	0.	2.	0.	2.
GENERAL	0.	1.	2.	200.	5.	2.	0.	207.	16.	2.	10.	8.	14.	41.
MULTIPLE	0.	1.	1.	19.	2.	1.	0.	23.	3.	0.	4.	0.	2.	9.

TOTAL HOURS ON PUBLIC ROADS IN THOUSANDS
PER YEAR IN OHIO BY OWNERSHIP

	TRACTORS				SELF-PROPELLED EQUIPMENT					TRACTORS HITCHED TO PLANTING + TILLAGE EQUIP			FERT + CHEMICAL APPL EQUIP			
					COMBINES				ALL					ANHYDR		
OWNERSHIP	NARROW	CRAWLER	WIDE	ALL TRACTORS	CORN	GRAIN	MOWER COND.	ALL SP-EQ	SP-EQ + TRAC	PLOWS	PLANTERS	ALL P+T EQUIP	MANURE SPRDR	AMMO APPL	BOOM SPRAY	ALL F+C EQUIP
OWNED	1138.	2.	1040.	2172.	30.	15.	0.	106.	2278.	144.	75.	219.	279.	5.	40.	326.
RENTED	2.	0.	1.	2.	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.
BORROWED	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TRACTORS HITCHED TO

	STATIONARY OR MATERIALS HANDLING EQUIPMENT								HARVESTING EQUIPMENT					
OWNERSHIP	FORAGE BLWRS	ELEVA TORS	FORAGE WAGONS	ALL WAGONS	FR-END LOADER	BLADE SCRAPER	CHAIN SAW	ALL S M EQUIP	BALER	MOWER COND.	CORN PICKER	FORAGE HARVTR	ROTARY MOWERS	ALL HARVTNG
OWNED	11.	4.	142.	718.	25.	14.	0.	773.	103.	11.	33.	57.	27.	232.
RENTED	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
BORROWED	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TOTAL HOURS ON PUBLIC ROADS IN THOUSANDS
PER YEAR IN OHIO BY SEX

	TRACTORS				SELF-PROPELLED EQUIPMENT					TRACTORS HITCHED TO PLANTING + TILLAGE EQUIP			FERT + CHEMICAL APPL EQUIP			
					COMBINES				ALL					ANHYDR		
SEX	NARROW	CRAWLER	WIDE	ALL TRACTORS	CORN	GRAIN	MOWER COND.	ALL SP-EQ	SP-EQ + TRAC	PLOWS	PLANTERS	ALL P+T EQUIP	MANURE SPRDR	AMMO APPL	BOOM SPRAY	ALL F+C EQUIP
MALE	1111.	2.	991.	2104.	30.	15.	0.	106.	2210.	140.	79.	219.	278.	7.	42.	326.
FEMALE	28.	0.	63.	92.	0.	0.	0.	0.	92.	5.	0.	5.	1.	0.	0.	1.

TRACTORS HITCHED TO

	STATIONARY OR MATERIALS HANDLING EQUIPMENT								HARVESTING EQUIPMENT					
SEX	FORAGE BLWRS	ELEVA TORS	FORAGE WAGONS	ALL WAGONS	FR-END LOADER	BLADE SCRAPER	CHAIN SAW	ALL S M EQUIP	BALER	MOWER COND.	CORN PICKER	FORAGE HARVTR	ROTARY MOWERS	ALL HARVTNG
MALE	11.	4.	142.	668.	25.	14.	0.	723.	96.	11.	33.	56.	27.	223.
FEMALE	0.	0.	0.	53.	0.	0.	0.	53.	9.	0.	0.	1.	0.	11.

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