

CUSTOM WHEAT HARVESTING IN THE ECONOMY  
OF WESTERN OKLAHOMA

CUSTOM WHEAT HARVESTING IN THE ECONOMY  
OF WESTERN OKLAHOMA

By

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## CUSTOM WHEAT HARVESTING IN THE ECONOMY OF WESTERN OKLAHOMA

### PURPOSE

The purpose of this study is twofold:

1. A descriptive analysis of custom harvesting as it is found in the wheat area of western Oklahoma.
2. An analysis of the harvest activities of custom harvesters and farmers in an effort to give an insight into the future of custom wheat harvesting.



PART I  
THE SCOPE AND METHOD

## THE SCOPE AND METHOD

The study is based on primary information gathered by the investigator and others during the 1948 harvest. Schedules were taken from custom harvesters and farmers as they cut wheat in the State.

The sampling technique was random, but stratified to the extent that the number of schedules taken was sufficient to represent any area significantly different from other areas. It was endeavored to obtain a fair sample from various size farms. Basic soil types, geographic differences, and climatic differences were considered.

Parts of this thesis are based on subjective information gathered by the investigator in his contacts with farmers and custom harvesters.

Many persons who were interviewed as custom harvesters were Oklahoma farmers; consequently, a knowledge of their reactions was obtained.

The custom harvesters were interviewed as harvest progressed. Large and small, and new and old operators were interviewed. An effort was made to include in the sample every type of combine with which wheat is typically cut.

Many questions were of interest to the Staff of the Department of Agricultural Economics, but time and funds limited the amount of information that was gathered. It should be noted that the schedules were frequently taken in the harvest fields, and since harvest is the farmers' and operators' busiest time, the schedule was kept short and restricted to the most vital questions. It was observed that most farmers and harvesters were very willing to cooperate, but that their time was limited. Harvest time was a poor time to acquire schedules, but there was no other time when the information could have been gathered.

The schedule taken is shown in Appendix B, Part I.

The route followed was one which would give sufficient coverage of the area with a minimum of travel. The investigator cut across the wheat area six times during harvest, crossing the far southern area just as harvest began in Oklahoma. Each trip progressed farther northward until harvest moved out of Oklahoma.

Three trips were involved in the combine sample. The first trip covered parts of Canadian, Grady, Caddo, Kiowa, Tillman, Washita, and Custer counties. The second trip one week later covered Logan, Kingfisher, Blaine, Custer, and Dewey counties. The third trip covered Garfield, Major, Woodward, Texas, Beaver, Harper, Woods, Alfalfa, Grant, Kay, and Noble counties.

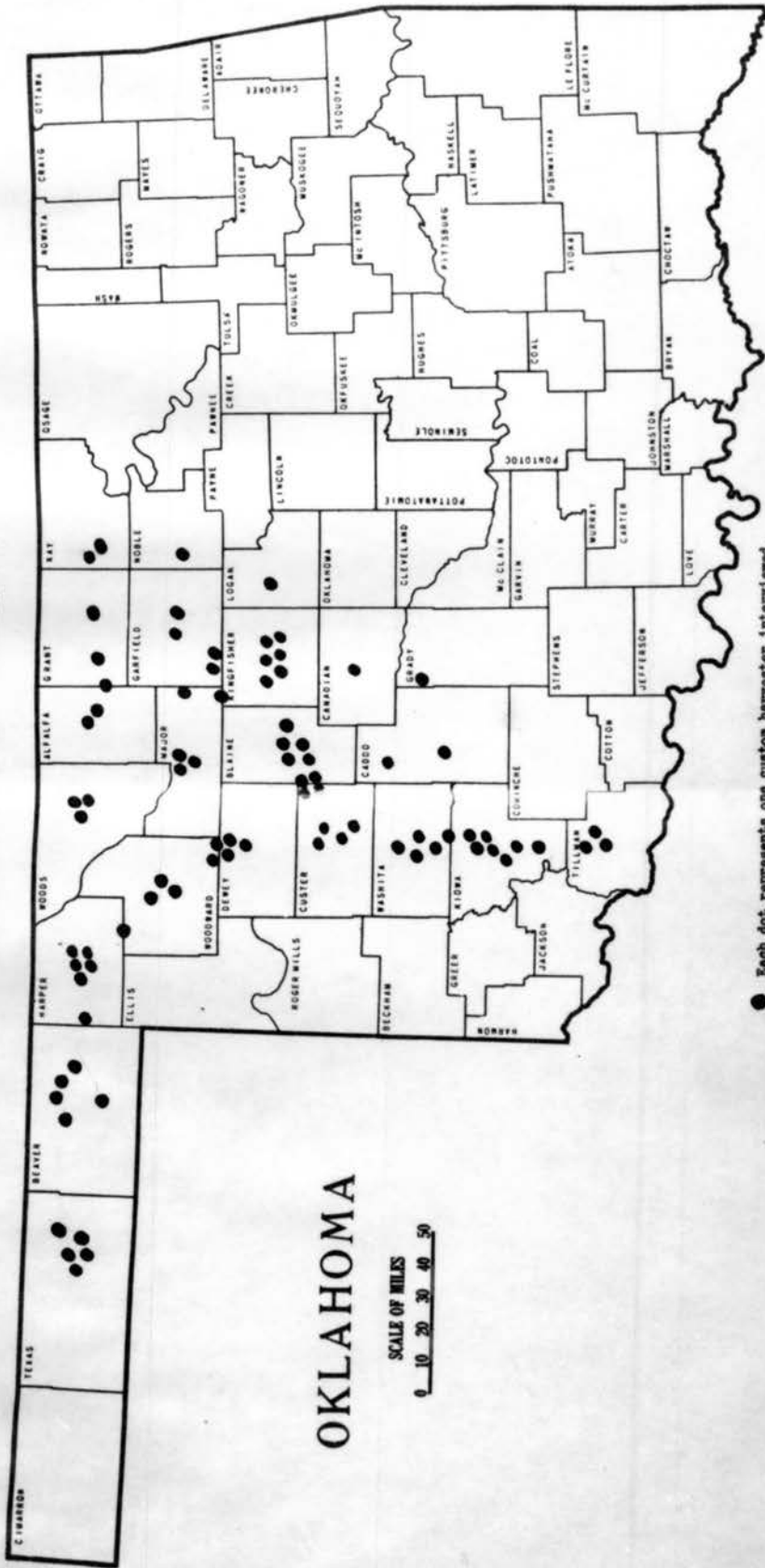
Thirty-three farmers and 71 custom operators were interviewed at the various places. (Figure 1 shows where custom harvesters were contacted.)

The information accumulated was then broken down to show something of the organization of custom harvesters and to give vital statistics concerning farmer and custom operators' harvesting costs.

A second series of schedules were taken from farmers. (See Appendix B, Part II for schedule.) This schedule was taken for the specific purpose of giving an insight into the farmer reaction concerning his own harvesting problems and to give his reaction to custom harvesting. It also gave statistics on local conditions in the areas where the schedules were taken.

The identity of the various people involved has been withheld. Each schedule was given a code number and in all references to individuals the code only is used.

FIGURE 1. WHERE CUSTOM HARVESTERS WERE LOCATED



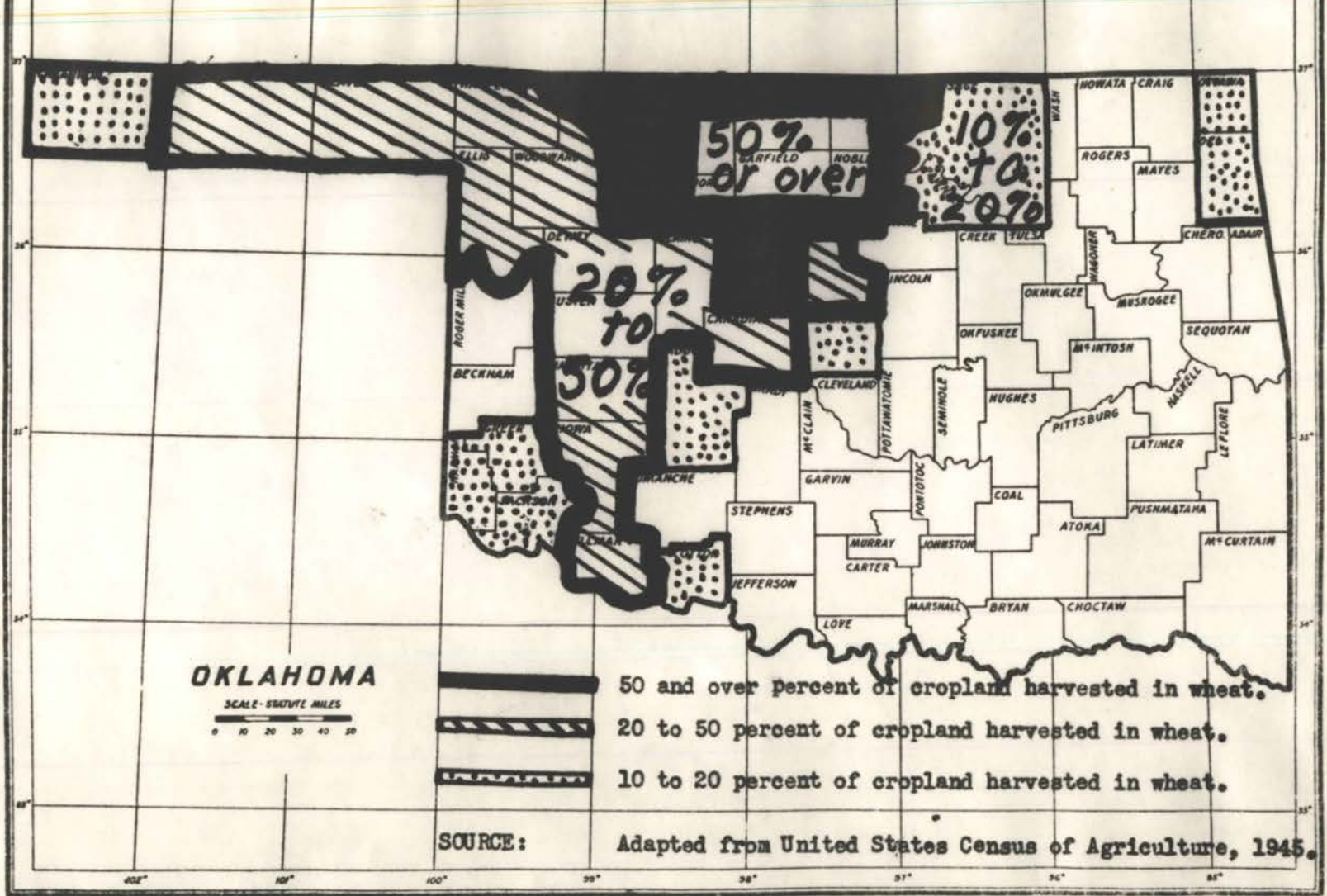
● Each dot represents one custom harvester interviewed.

OKLAHOMA

SCALE OF MILES  
0 10 20 30 40 50



FIGURE 3. WHEAT CONCENTRATION IN OKLAHOMA



PART II

HISTORY OF CUSTOM HARVESTING

## HISTORY

In the early 1900's, when Oklahoma was settled and Oklahoma farmers began to grow wheat, the most common method of harvesting was the binder. Wheat was bound, shocked and left until the threshing machine worked its way into the community and threshed for the farmers. Most threshing machines were "custom machines" for the typical farmer of that day could not afford to own a thresher strictly for his own grain. Often a group of farmers cooperatively owned a machine. With this machine they threshed their wheat plus any other wheat in the community that needed to be threshed. Frequently, an individual farmer might own a thresher and do custom threshing throughout the neighborhood, usually employing as crew members many of the farmers for whom he threshed. In spite of cooperative effort, there developed during harvest a serious need for additional workers. The work was too seasonal to keep people living in the community solely to provide harvest help. Because of this need there developed a force of migrant laborers who followed the harvest from the South to the North. This force was composed largely of young men, bachelors, adventurers, and others. In these early days the migration at harvest time was more a migration of labor than of labor and machines. Few threshing machines moved north with the harvest; some did move northward, but the difficulty of moving the machines made this migration of negligible importance. Some threshing machines were loaded on freight cars and shipped from southwest Oklahoma to Kansas, but usually two stops were the maximum "run" for any one year.

R. W. Cessna, a veteran journalist, who saw the development of the west, summed it up in these words in his article, "Combines Mobilize":

"Time was, before the combine, that wheat harvest time each year was time for the movement of a huge army of migrant workers. Thousands



of itinerant field laborers started out in Texas in May and came to a halt on the border of Canada in September. It was a haphazard, uncertain, uneconomical, and inefficient business at best.

"Development of the combine, coincident with other shifts in farm economy, slowly squeezed this army down to the point where it was but a dribble. Not every farm, especially the small ones, could own its own combine, but they rented and shared as farmers are accustomed to doing. The whole process still needed some hand labor, but local help pretty much satisfied this except in emergencies." <sup>1</sup>

The header somewhat replaced the binder in harvesting wheat and lowered the labor requirements slightly; however, the same basic labor problem still existed.

During World War I and following it, the Wheat Belt became mechanized, and tractors and combines replaced horse power and headers.

Combines required a large investment and the time was ripe for the development of a "custom combining" system, but this system failed to develop. Several reasons caused this failure:

First and probably the most important drawback which plagued the would-be cross country threshers, was the lack of mobility. The first combines were literally self-powered threshing machines with a header barge attached. They were heavy to pull, and clumsy to truck and move cross country. Steel wheels made rapid movement impossible.

The development of the rubber tire and of higher speed tractors along with lighter, more mobile combines solved the problem. This solution came in the late 1930's, but was not put to use until World War II made brigade harvesting necessary.

It is common belief among many people that the "self-propelled" combine was the real key to successful custom harvesting. Massey-Harris

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<sup>1</sup> Ralph W. Cessna, "Combines Mobilize," Christian Science Monitor, August 17, 1946, p. 5.

pioneered in late self-propelled combine development, but Baldwin, in the 1920's made a combine which fit on a Fordson tractor and was a self-propelled, self-powered unit. Mobility was lacking and the machine never became popular.

An additional development which aided was the improvement in trucks. The 1½ ton high pressure single-tired truck of the 1920's and early 1930's was hardly adaptable to hauling tractors and combines over the country. Freight shipment was slow, costly, and bothersome. The long wheel base, dual-tired trucks of today with sufficient gear reductions readily permit combine and other heavy equipment transportation.

An additional development, which, though not absolutely necessary, does make the long trip from Texas to the Canadian border amid strenuous harvesting labor more bearable and attractive, is the house trailer. It is not pleasant to look forward to spending from May to September sleeping on the ground or on a make-shift bed in the open through rain and storm. Even tents are not satisfactory because they involve setting up and taking down at every stop.

The house trailer provides many of the comforts of home plus the added advantage of mobility on a moment's notice. Cooks frequently go along and the home-cooked meals are a welcome sight to hungry harvesters.

Custom harvesting received popular attention during World War II. Farmers were asked to and did raise the biggest wheat crops ever grown in the United States. While these crops were being raised, steel was going into tanks, airplanes, guns, and other war materials leaving little to be made into combines. Labor was scarce. How was the wheat harvested?

The United States Department of Agriculture working through the Division of Extension Information organized their forces and aided in the

development of the famous "Harvest Brigades". Every available combine was asked to come and "Ports of Entry" were set up so the whereabouts of combines would be known. Information centers were established and those working with the local county agents gathered vital harvest information.

If Area A was to be ready to harvest four days hence and Area B, forty miles south was just now finishing up, the custom harvesters of Area B were directed toward Area A. Combines were directed to areas where they were needed and bumper crops were saved.

Today the custom operators still rove the highways. Are they here to stay, or are they an outgrowth of war which will pass with the coming of permanent peace? Varied opinions may be discovered.

A man who farms in the western Oklahoma Panhandle, interviewed by the investigator, said:

"Sure we hired our wheat custom cut during the war, but as soon as we could get a new combine after the war we got it and hope to cut all of our own wheat from now on. Custom harvesting must go just as price controls and rationing went."

On the other hand, R. W. Cessna quotes Hugh Eams as follows:

"While growing out of a war-aggravated need, the system won't be scrapped... It's just the beginning, he says, of a new era of farmer cooperation that will help the farmer, help the laborer, help a hungry nation and a hungry world." 2

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<sup>2</sup> Ibid.

STRATHMORE PARCHMENT

100% RAG U.S.A.

PART III

ORGANIZATION OF CUSTOM HARVESTING

STRATHMORE P

100% RAG U

### Character of Custom Harvesters:

The custom harvesters who operate in Oklahoma are mostly farmers. Forty-four of the 71 interviewed (62 percent) farmed as well as did transient custom harvesting. Only 26.8 percent did harvesting as a full-time occupation. Men from many other occupations were found, but generally the occupation other than harvesting was one which fit well into the work pattern.

Eleven had businesses other than farming and in this group a wide variation was found. More farm machinery dealers than any other were found; however, mechanics, truckers, blacksmiths, barbers, skating rink operators, college students, and school teachers were also discovered.

Wide variations were discovered in the way these businesses were operated during harvest, but most prevalent were those who left the business under the guidance of the wife, a brother, a son, or other members of the family. Some merely "closed up" during harvest, and some of the others left things in charge of a partner or trusted employee.

The farmers who are also custom operators are typically large farmers, for the average size farm is 649.9 acres with 462 acres in wheat. Many farmers who were custom harvesting made little or no additional investment in harvesting equipment, but merely custom cut in order to more adequately utilize the machinery they have and take best advantage of their labor and time. Many of these farmers do not cut through to the Canadian border. They come south and cut through to their homes, stopping there because after harvest they have field work to do. Some Oklahomans and Texans do the opposite by cutting their own wheat first and then following north as soon as early plowing is finished.

Many of these farmers do not plan to make a permanent occupation of custom cutting. Some purchased new combines this year or last year and they are doing custom work with them while they are new in an effort to get the cost of the machine back. Once this has been done they plan to keep the combine for their own use. Others were harvesting for reasons which seem peculiar at first glance but when scrutinized closely show sound judgment. Occasionally, a farmer was found who had some boys who were excellent harvest hands, but had nothing to do at home, so they fixed up the combine and began harvesting in order to utilize profitably the labor at hand.

#### How The Business Is Built:

One-half of the custom operators interviewed in Oklahoma have been custom harvesting for two or more years (Table 1). The 50.7 percent of the operators that have been at it two years or less account for only 37.7 percent of the total custom combines; therefore, a large portion of the wheat cut was cut by experienced harvesters.

An analysis of the length of time the various operators have been in the business reveals that typically they begin as small one combine units and add a combine per year as time goes on.

Thirteen of the 20 harvesters who were in their first year had one combine. This 13 is the modal size so far as number of combines is concerned. Seven of the 16 harvesters who were in their second year had two combines and this seven is the modal size. Seven of the 15 who were in their third year as harvesters had three combines and this seven is the modal size. The above statistics indicate that the typical operator began with a minimum of equipment and has grown into the business, adding a combine per year.

Table 1. Custom Harvester's Data Sheet.

Years of Operation	Number of Harvesters	Percentage of Total Harvesters	Number of Combines	Number of Operators	Total Combines Per Group	Total Combines Per Year's Operation	Percentage of Total Combines	Percentage of Total Harvesters	Percentage of Total Combines
(Years)	(Number)	(Percent)	(Number)	(Number)	(Number)	(Number)	(Percent)	(Percent)	(Percent)
1	20	28.2	1 2 3 4	13 5 1 1	13 10 3 4	30	17.1		
2	16	22.5	1 2 3 4 5	4 7 3 1 1	14 14 9 4 5	36	20.5	50.7	37.7
3	15	21.1	1 2 3 4	1 6 7 1	1 12 21 4	38	21.7		
4	9	12.8	2 3 4 6	4 2 2 1	8 6 8 6	28	16.0		
5	3	4.2	2 5	1 2	2 10	12	6.9	49.3	62.3
6	3	4.2	1 4 9	1 1 1	1 4 9	14	8.0		
7	3	4.2	1 3 4	1 1 1	1 3 4	8	4.6		
10	1	1.4	6	1	6	6	3.4		
12	1	1.4	3	1	3	3	1.7		
Totals	71	100.0				175	100.0		

There are exceptions to the rule. Number 31 is an exception worth mentioning because in this, his first year, he purchased \$75,000.00 worth of equipment including four combines, seven trucks, three house trailers, a converted bus used as a diner, a light plant, and a shop trailer. Other equipment includes a deep freeze home locker, tables for the diner with swinging chairs, three refrigerators and numerous other pieces of equipment.

Some old timers in the business still operate with a minimum of equipment. One man who had been at it since 1936 had two combines and two trucks. They carried only the necessities of life with them.

The same variations found among other businessmen concerning business practices and in ideas concerning what goes for success in business were found among custom operators. They are average Americans trying to succeed at a relatively new business.

#### Routes Followed and Combine Concentration:

The routes followed by the custom harvesters form patterns. Oklahoma wheat farmers are fortunate in that the Wheat Belt tends to form a triangle with one point in southwestern Oklahoma. Annually, combine operators who are anxious to get started concentrate in this area. There has always been plenty of harvesting machinery in the area and it leads to low custom harvesting prices. This fact is evident if one observes the \$0.50 to \$1.00 per acre increase in price which usually occurs as harvest nears the Kansas border and the combines spread out.

The custom harvesters who come south are ready for harvest to begin; therefore, they go as far south as possible, most of them beginning in the Vernon, Texas; Grandfield, Oklahoma; or Frederick, Oklahoma area.



Some do not go this far south, but try to start in the Kingfisher, or Enid, Oklahoma area. After beginning in the south, the harvesters tend to fan out, each following his own route, and, all together covering the Wheat Belt. (Figure 4 shows how these combines fan out to cover the Wheat Belt.)

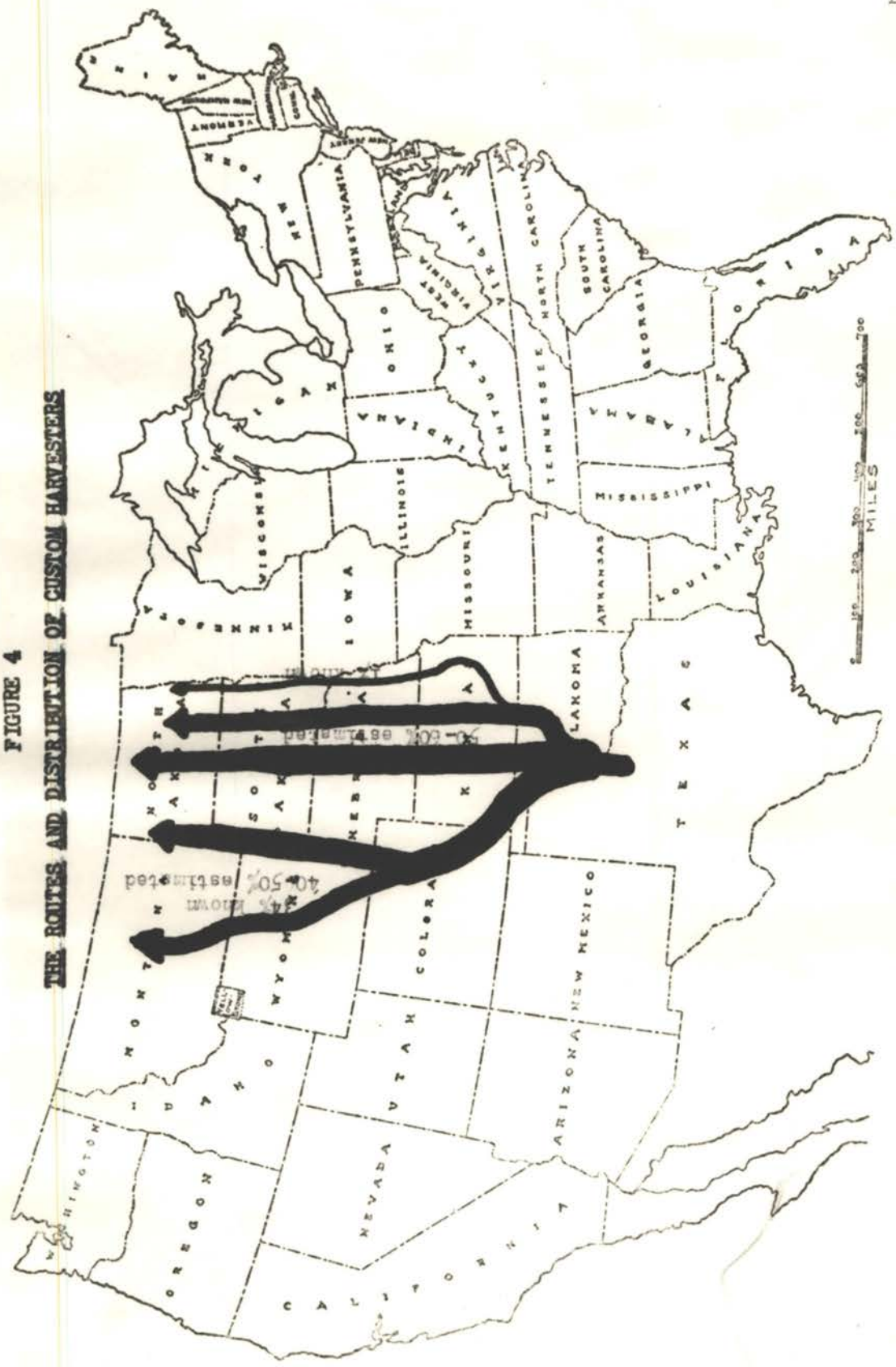
There was little guidance offered custom harvesters in 1948 by outside institutions; therefore, the number of combines pulling into any given area was a haphazard process and some areas did not get sufficient combines while other areas got too many.

The Turpin and Tyrone areas were examples of this surplus-deficit problem. On June 15 there were 18 combines sitting idle in Turpin, all of which were wanting work. On the same day there were no combines sitting idle at Tyrone, a distance of 25 miles by paved highway, and farmers were in near desperation for want of combines to cut dead ripe early wheat.

When the investigator went through Turpin he suggested to several idle combine operators that there was wheat to be cut in the Tyrone area. Immediately, these operators went to Tyrone and all found work within four hours after arrival. These surplus-deficit areas of harvesting machinery are a problem faced by custom harvesters and farmers, and further discussion will be taken up under the section entitled, "Problems Facing Custom Harvesters."

Custom harvesters tend to bunch or concentrate in areas where favorable cutting was obtained in past years. Last year's crop seemed to dictate the route for most of this year's harvesters. Last year Colorado and Montana wheat made outstanding yields and combines were at a premium. Custom operators heard of the nice profits reaped by those who turned west last year and worked in this favorable area. This year 34 percent of the

**FIGURE 4**  
**THE ROUTES AND DISTRIBUTION OF CUSTOM HARVESTERS**



custom harvesters stated definitely they were going to the Colorado-Montana area. Many did not know where they would go; therefore, it is logical to estimate that as high as 40 to 50 percent of the custom harvesters interviewed went into this area.

Only one person interviewed planned to go up along the east side of the Wheat Belt. The remainder distributed themselves throughout the central part of the Wheat Belt. Figure 4 shows how custom harvesters routed their combines and distributed themselves.

#### Working Arrangements With Farmers:

Some harvesters feel that they must line up their work ahead of the harvesting season. Others follow no definite route and leave their work to chance. The last group tries to move from a cut area into the heat of harvest and get their cutting on short notice. Twenty-eight or approximately 40 percent of the operators cut or at least try to cut for the same farmers year after year. No written ironclad contracts were discovered, although rumor reports indicate that there were a few cases where farmer and custom harvesters bound themselves by written contract. The investigator feels that these written agreements are in such a minority that they need not be considered.

Generally, both farmers and custom operators do not want to be bound by contract or to feel very obligated to one another.

If a custom harvester is working on 1,000 acres, let us say, at Frederick, and it rains so much that he is unable to finish his job in time to cut 500 acres he has lined up at Hobart, he does not want to be ironclad contracted to cut the Hobart wheat. Physical conditions may make it absolutely impossible for him to cut it, therefore, he prefers a loose

verbal arrangement whereby he assures the farmer that he will cut his wheat for him if possible. If something happens making it impossible for the custom harvester to cut the wheat, the farmer is free to get somebody else. This policy protects both farmer and harvester because the farmer does not want to be obligated to let his ripe wheat stand in the field while he waits for a certain custom harvester.

The typical arrangement in 1948 was as follows: When the custom operator left the year before, he asked the farmer if he would like to have him cut his wheat again next year. If the farmer was interested, he said so, and during the winter received several letters from the operator reassuring him that his wheat would be cut, if possible. Just before harvest, the custom harvester wrote the farmer and gave him a list of places, and the dates he would be there and how to contact him, usually by collect telephone call or wire. Usually, the farmer was asked to call or contact the operator four or five days ahead of the day the farmer felt his wheat would be ready. Then on the night before the custom harvester moved to the farmer's place, he called the farmer and again let him know that the combines would be there and inquired about cutting conditions. This policy seemed to be the best and left the farmer satisfied as well as the harvester. It should be noted that the telephone and telegraph bills were a substantial cost, but this constant contact allowed the operator to keep his combines running the maximum time. The above policy is also sound in that it keeps anxiety at a minimum for both farmer and harvester. In most cases the telephone calls have been money well spent. For example, a custom harvester working near Vernon, Texas had written a farmer at Hooker, Oklahoma and had been told by the farmer that the wheat would be ready on a given

day. On that day the harvester arrived to find the farmer's wheat already being cut by other harvesters. The farmer had neglected to notify the custom harvester of his change in plans. The disheartening part of the story is the fact that the custom harvester had turned down work along his route from Vernon to Hooker. At Hooker he was unable to secure work. Constant contact would have ironed out these difficulties.

This year was a hard year for custom harvesters. Thousands of new men came into the business as a result of reports of huge profits made in 1945, 1946, and 1947. Throughout Oklahoma during harvest, combines could be seen sitting idle. It was the custom operator who had not "lined up" work before harvest who was idle and combines sitting idle are a losing proposition.

Another advantage to the planned route with stops prearranged is that it should lead to better work on the part of the custom harvester. The custom operator who plans to return to the same group of farms the next year must do satisfactory work this year. Wise custom operators have found that farmers who know them are their best advertising medium and work agents.

For example, Number 3 has cut 5,200 acres for the same farmers for four years. This year while cutting for a regular customer in Kiowa County he was plagued with the unevenness of grain ripening. A farmer at Hobart for whom he was cutting had several hundred acres but it was ripening at a slow rate and in the fashion which farmers call "patchy." In other words, a 20 acre patch in an 80 acre field might be ready to cut, but the rest might not be ready for several days. The Hobart farmer knew every farmer in the area. He talked to his neighbors and praised the work of

Number 3. As a result, Number 3 picked up miscellaneous cutting in the neighborhood, 40 acres here and 25 there. Thus the operator was able to keep running most of the time. The investigator estimates that Number 3 picked up some 400 such miscellaneous acres in this area as a result of the farmer's efforts.

Farmers are reluctant to take a stranger and his combine into their fields. The knowledge that a custom operator did good work for a neighbor is valuable to both farmer and custom operator.

#### Ownership and Business Organization:

The ownership pattern found was similar to that found in any other business. Ownership broke down as follows:

	<u>Percent</u>
Operator owned	83
Partnership owned	26
Manager operated absentee owned	1

Management was obtained in the same basic ways it is obtained in any other business. The combines were managed as follows:

	<u>Percent</u>
Owner operated	71
Pure partnerships	14
Working partnerships	14
Manager operated	1

The two types of partnerships mentioned need explaining. A pure partnership as referred to in this report is a true business partnership where two men cooperatively own various equipment. The equipment is owned collectively by both or all the men in the partnership with no individual ownership.

The working partnerships are individual units combined as a unit in order to take advantage of their size in getting the choice work. Small

units stand poorer chances of getting the larger fields and other choice cutting than do larger units; therefore, two or more small units may work together in order to form a larger unit. These working teams have been classed as working partnerships.

The general organization of the owner operated combine groups usually consisted of a manager who also was the owner and located the work, was responsible for the combine, and did all necessary business transactions; combine operators; and the necessary truck drivers. Often no specified task was assigned to anyone and work was shifted to provide a change and prevent boredom.

In the partnerships the typical organization consisted of a business manager who found work and crew members and transacted business; and a combine supervisor who was responsible for the mechanical operation of the machinery, plus the necessary laborers to fill the crew. When two operator owners combined to form a working partnership, usually some agreement was reached as to the duties of each owner. If these duties were not assigned, frequently, the same arrangement developed out of the natural tendencies of the owners. For example, two owners combined four years ago for the purpose of increasing the number of combines in the outfit so as to make it easier for them to get bigger acreages. No arrangements were made. One is a natural born salesman and businessman and it was found that he could get cutting where the other failed. The other was a mechanic and farmer by trade and was an excellent combine man. Shortly after the combination was formed the first just "naturally" began handling the business and the other the combines. In this case, the arrangement was made without any formal agreement. The partnership worked so well that it was continued

year after year. Occasionally, a working partnership between trucker and combine owner was found. The usual arrangement was that the trucker moved the combine operator on long hauls at cost. The combine owner fed the trucker, paid his help, changed the oil in the truck, and in return received the good will of the combiner so far as trucking wheat cut by him was concerned. The arrangements made within the crews were usually simple ones; the typical outfit was not so large that the owner could not perform all the supervision himself. The crew was merely made up of laborers who were hired to perform the tasks assigned.

In the larger units some responsibility frequently was delegated. Those that employed a mechanic could not justify paying his wages solely for the mechanical work done; therefore, the mechanic was delegated other duties. The logical division of responsibility based on ability was to assign the care and operation of the combines to the mechanic. This arrangement permitted the owner to spend all or part of his time tending to business. It should be added that this organization was most satisfactory.

#### Equipment:

The equipment taken along on the harvesting tour varied highly from individual to individual. There are two basic pieces of equipment which must be in every outfit. They, of course, are combines and trucks. Equipment other than these two pieces depend on the individual. The other equipment carried along adds comfort to the crew or makes operation more convenient.

An addition which was common was a house trailer, or its cheaper substitute, a bunk-house. It is a rugged individual indeed who can work 12 to 14 hours a day in harvest, sleep in a makeshift bed, eat in restaurants,



and not show ill effects after a four-month season. House trailers provide comfortable beds that are always protected from the weather and provide the facilities for home-cooked meals, if a cook is taken along. Frequently, the owner was a family man and he brought along a house trailer in which he and his family lived. The wife usually cooked for the entire crew which was a sizable saving in time and money since local cafes usually were crowded and expensive. The trailers were of all kinds. Some were \$4,000.000 commercially made jobs that had all the comforts of home, while others were made at a cost of less than \$200.00 and consisted of a frame and top covered with ducking, sheet iron, or aluminum.

Some of the bunk houses were war surplus troop carriers that had been equipped with bunks and other equipment. These carriers usually were towed behind a truck during transport.

Some of the larger and more elaborately equipped harvesters took mobile machine shops with them. These shops were trailers in which welders, drills, vices, anvils, etc., were carried. The shops usually were mounted on trailers; however, two war surplus Ordnance Corp maintenance trucks were found.

Two of the custom operators who had elaborate equipment carried or towed portable light plants with them. The plant furnished power for lights at night around camp, for small electrical equipment such as pencil drills, and breast drills, and for operating the refrigerators in the diners.

The larger custom harvesters typically took diners with them. They employed a cook and either fed the crew as a part of their wages, or paid the crew outright and charged them for their meals. The practice of boarding the crew was common among those who had facilities for doing it. The diners ranged from tents to expensive ready equipped house trailers. The

more common were custom made jobs constructed by the harvester himself or under his direction.

The typical diner was either an old converted bus or a war surplus troop carrier. The inside of these diners contained all the equipment found in a small cafe, but of course they were more compact. Refrigerators and stoves were usually operated from butane or propane tanks which were mounted on or in the vehicle. The diner solved one of the custom harvester's greatest problems. It was not uncommon to have to wait one-half hour in line to get a place at local cafes during harvest. The real discouraging factor, however, was the \$0.85 or \$1.00 paid for a meal which did not satisfy the appetite. Numerous cases were reported to the investigator in which crew members who ate at cafes had lost 15 to 20 pounds in weight.

Where it was possible, those harvesters with no diners preferred to eat with the farmer for whom they were cutting. The larger crews could not do this because most farm women are not equipped to feed 16 to 18 harvest hands. In addition, the period spent idle and moving still confronted the owner with a problem.

A passenger car or pick-up is probably the most necessary piece of equipment next to combines and trucks. Usually the trucks are busy hauling wheat while the combines are cutting. At least they should be if best use is to be made of them for idle trucks are a liability. If the manager has business to attend to, then he must have some means of transportation. A jeep or pick-up is ideal in that they serve other purposes such as hauling gasoline, oil, repairs, and at the same time are efficient to drive in search of work or for other general use. Custom harvesters reported that they had missed work as a result of not having a car along.

For example, one operator was finishing up a field and had no more work lined up. The farmer for whom he was cutting reported that there was wheat to cut at a place 25 miles away. The trucks were busy hauling grain and could not be spared. As soon as a truck was free the boss took it and drove the 25 miles to inquire about the work. When he arrived, the work had been given to another operator. In the meantime, the combines finished up the job and were sitting idle while the operator looked for more work. An automobile or pick-up would have permitted the boss to have found work and kept the combines running a higher percentage of the time.

Gasoline tank trailers, or a tank mounted on a truck, formed another piece of handy equipment. Portable tanks with pumps attached and mounted on trailers form a relatively inexpensive piece of equipment which makes gasoline handling less burdensome and less dangerous.

Many miscellaneous pieces of equipment were found and all served some useful purpose, but in some cases it was questionable whether the use justified the investment. The addition of these various pieces of equipment present an individual problem to each operator, and he alone can decide whether they pay or not. Some of the value of these pieces of equipment is subjective and cannot be weighed by an outsider.

An airplane used to fly over the harvesting belt and locate areas of ripe grain concentration and areas which were combine-deficit was found.

Pneumatic tires are numerous on modern machinery and each outfit has at least 10 to maintain; therefore, air compressors to pump the tires were found.

Other miscellaneous equipment included winch trucks in case of mud, extra tractors to provide power in case of mud, and gasoline engine, power-driven greasing equipment.

After observing some of the equipment found in the field in 1948, the investigator feels that custom harvesters are really just average citizens who, like most of the rest of us, have a weakness for gadgets. They are very conscious of labor saving devices.

#### Labor Relations:

The preservation of law and order among crew members was accomplished in different ways, depending on the organization of the crew. Some elaborate organizations were found. One large outfit was organized into a trailer town with a population of 27 and had an elected mayor and town council. According to crew members, the council had delegated to it disciplinary powers over the conduct of the crew members. Elaborate controls such as the above mentioned ones were not common.

Number 31 was a rather large outfit, but was organized on a cooperative basis. The owner of Number 31 said in an interview at Cordell, Oklahoma:

"We have no rules or regulations, but all cooperate. We try to hire good men who are quiet in nature and require little disciplinary action. No men have ever been fired and only one has quit. He was homesick and tired."

The typical organization was a simple one with no rules or regulations. The only power exercised over the crew was the power to "hire and fire" exercised by the owner or manager. Little trouble was encountered during the season for two reasons. First, harvesting is hard work requiring much physical exertion and long hours. A busy person has little opportunity to get into trouble. Second, harmony in the crew was obtained because the crews were made up of men who were similar in character. Men with mutual interests usually get along.

### Analysis of Intended Acreages and The Effect of the Variations:

The operators with several machines intended to cut more wheat per combine than did those with only one machine. The range was established by the one combine operators who intended to average 1,800 acres per combine and the four combine operators who intended to cut an average of 3,643 acres per combine.

The one, two, and three combine operators accounted for 63.4 percent of the custom combines in the survey, but they intended to cut only 54.0 percent of the wheat (Table 2). Contrast the above percentages with

Table 2. Size of Unit and Wheat Cut

Number of Combines Per Unit	Number of Operators	Percentage of Total Operators	Combines Per Group	Percentage of Total Combines	Total Acres Intended to Cut	Total Acres Per Combine	Percentage of Total Cut By Size Groups
1	20	28.2	20	11.4	35,990	1,800	9.3
2	23	32.4	46	26.3	85,123	1,851	22.0
3	15	21.1	45	25.7	87,940	1,954	22.7
4	7	9.9	28	16.0	102,000	3,643	26.4
5	3	4.2	15	8.6	30,300	2,020	7.8
6	2	2.8	12	6.9	25,320	2,110	6.6
9	1	1.4	9	5.1	20,000	2,222	5.2
Totals	71	100.0	175	100.0	386,673		100.0

the four, five, and six combine operators who owned 36.6 percent of the combines, but who intend to cut 46.0 percent of the wheat. The reason for this pattern is that the larger operators are experienced men who have been through the harvest before. They know the farmers for whom they have cut in the past and they have a vast amount of experience and knowledge on which to call.

They had in many cases lined up their work so that the element of chance was kept at a minimum. When four or more combines are in an outfit, a person who does nothing but manage and locate work is usually employed, which makes it possible to keep the combines going more of the time.

On the other hand, the one combine outfits were typically new men (Table 1). Little work was arranged in advance and the element of chance played a large role. The smallness of the unit made it impractical for a man to be employed whose sole job was the location of work and handling of business matters. Occasionally, the owner was the only combine operator with the outfit and the only other help was a truck driver. In these cases, when a job was finished, the combine sat idle while work was located.

Figure 5 shows a comparison of the size of unit with number of combines in each group and intended acreage per group.

Figure 6 shows the intended acreage to be cut per combine by the various size outfits. It shows that the larger units cut more per combine. Why do the three and four combine outfits cut more per combine than the five and over units?

Close examination of the facts brought to light that there were 13 owners in the partnerships which made up the six outfits with five or more combines per outfit. Only one outfit was owned by one man; therefore, these five and over combine outfits were actually smaller units combined into larger working units. How far north each combine goes depends on the individual owner; therefore, 13 men must decide how far north these units go rather than six.

The average ownership per man was 2.8 combines, which logically meant that some organizational patterns of the five and over combine units should compare with the two and three combine units. It should be noted

FIGURE 5. COMPARISON OF THE PERCENTAGE OF CUSTOM HARVESTERS IN EACH SIZE UNIT WITH PERCENTAGE OF TOTAL COMBINES IN EACH SIZE UNIT, AND WITH PERCENTAGE OF TOTAL WHEAT CUT BY EACH SIZE UNIT

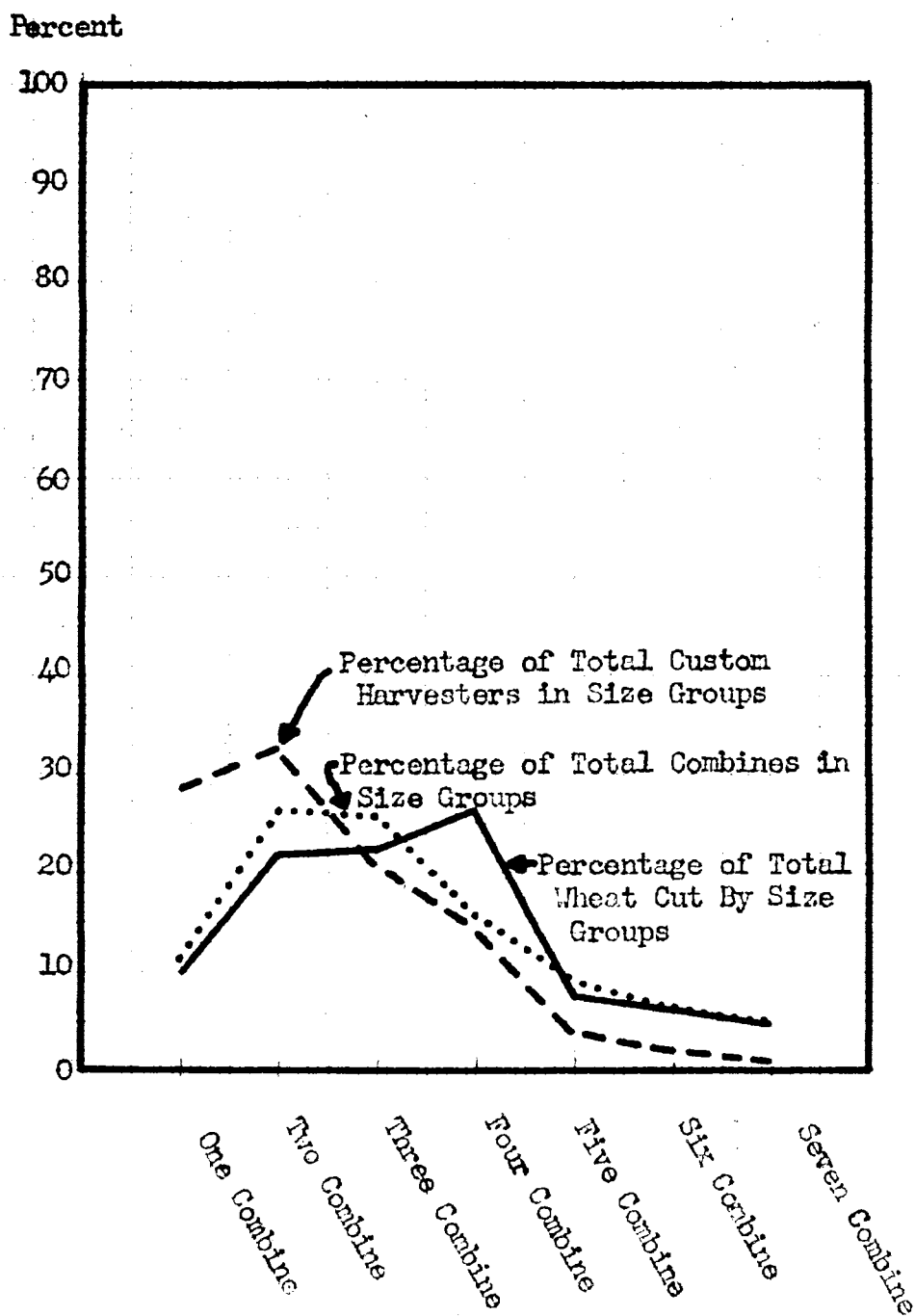
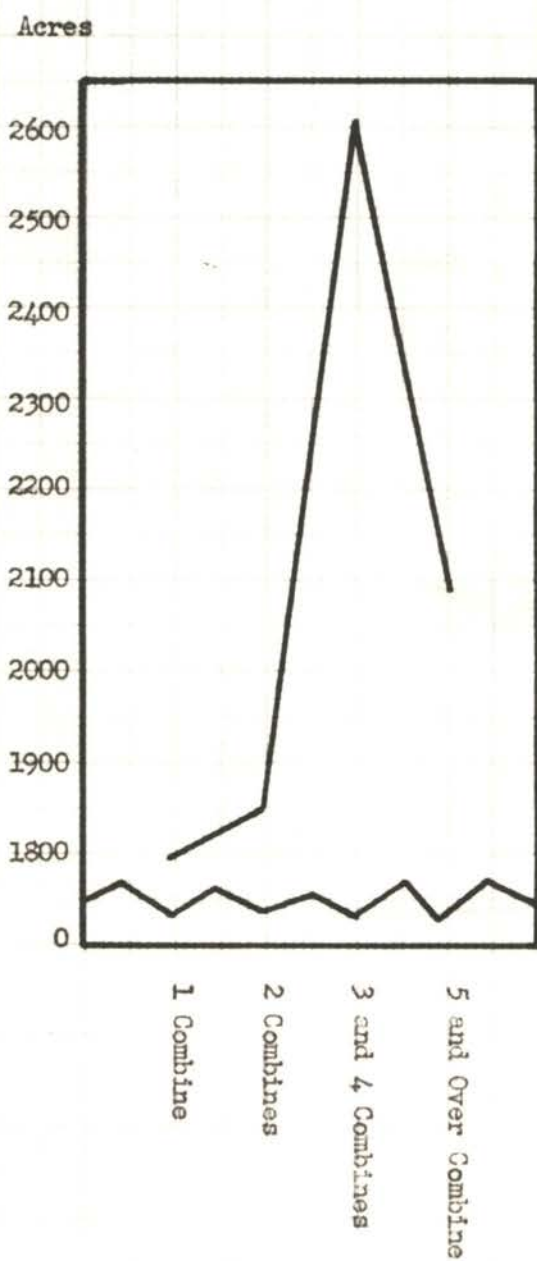


FIGURE 6. ACRES PER COMBINE HOPED  
TO BE CUT BY SIZE UNITS





here that just because the total acreage per combine per year of the five and over units compares with the smaller units this does not indicate that the whole organization of the larger units compares. It does not. As has been pointed out, the management of most larger partnerships rests in the hands of one man. It is the right of the owner, however, to say how far north his combine will cut. The main factor determining acreage per combine was the length of season in cutting days.

Examination of the five and over combine groups shows that only two of the operators make custom cutting a full-time occupation. Such men as the three owners of Number 9 who own and operate a sawmill and trucking concern make up this larger combine group. These men have taken up custom cutting as a secondary or part time job. Not as many acres per combine could be expected from them as from the three and four combine groups.

Some other facts which help explain the smaller acreage per combine in the larger groups were found in the nature of the other occupations and in the reasons for the formation of various partnerships. Case studies illustrate this better than comments.

Number 36 had five self-propelled combines. One owner is a student at Panhandle Agricultural and Mechanical College and this was his first experience as a custom harvester. Another bought out the interest of his brother who has gone into the machinery business. The result was that two relatively inexperienced men had combined to form a large outfit. The one is limited in season by the beginning of college and the other by fall farm work; therefore, their season is limited. Two thousand acres per combine is a sizable figure for men who have no more cutting days than they have.

Number 53 was the largest unit interviewed and included in its owners two farmers and an Enid machinery dealer. One owner could not go along with the machines, so he attached his combine to the outfit and merely let them ride along. None of these men were full-time professional custom harvesters. One could not make the harvest at all and fall work required the presence of the other two. Their goal was 2,220 acres per combine.

Number 46 owned six self-propelled combines. He farms 480 acres of Nebraska land and had 320 acres of wheat. Again, a large operator has two occupations which after part of the season is completed compete for his time.

Only two outfits in the large combine group considered themselves full-time custom operators.

On the other hand, the three and four combine outfits were the first group to appear as what may be called typical professional custom harvesters. Only nine partnerships were found in the 22 outfits in this size group.

Typical men in this professional group are those found in Number 3 who had 5,200 acres already arranged and would undoubtedly get some 2,800 extra acres.

Number 31 was another with a large future. His motto was "We cut." He cut all wheat anywhere at whatever price he could get. In 10 cutting days he had cut 1,580 acres and had turned down other work. He was cutting on a 400 acre job and felt that to accept more was unsound in view of threatening weather.

Number 13 was another outfit with a large intended acreage. In the crew were two sons who operated combines and kept things going. The

father managed the outfit. Four years of experience gave a solid foundation for their work. Some 3,000 acres which they intended to cut was with farmers for whom they had cut last year.

Number 34 was another example of the many professional harvesters found in the three and four combine group. He does nothing else and has inexpensive house trailers in which his workmen live. He hires family men when possible and they too make custom harvesting a full-time job. Their season extends from Oklaunion north to the Canadian border and farther if possible. Work is arranged by contacting the farmers for whom they have cut before and arranging for new work through them. They hope to get 3,500 acres per combine.

PART IV  
COST COMPARISONS OF VARIOUS SIZE CUSTOM  
HARVESTERS AND FARMERS

### Harvesting Costs in 1948:

Farmers and custom harvesters discovered that the cost of harvesting wheat in 1948 was very high. Many of the persons interviewed expressed concern over the rise in costs in recent years.

New combines sold at high prices on the open market, and the black market did a thriving business. A study of the schedules taken reveals that many combine operators paid over list price and at present considered their combines worth more than list price. Several custom harvesters reported paying \$1,000 over the list price and one reported paying \$2,100 over list price.

The harvesters' investment is large and the total investment of the 71 custom operators interviewed totaled \$1,444,560. The investment per combine for custom harvesters (including combine) amounted to \$8,254.63.

The total cost per acre varied from \$1.95 per intended acre cut for the one combine custom harvesters who intend to cut between 1,001 and 2,000 acres per combine to \$2.27 per acre for the five combine and over operators who intended to cut over 2,000 acres.

The most efficient harvesting was done by the one combine custom harvester group which had an average total cost per acre of \$1.95.

Farmer harvesting compared to custom harvesting costs indicated that farmers, in general, could not cut their wheat as cheaply as could custom harvesters; however, there was no phenomenal difference, the average cost for farmers cutting their own wheat running at \$2.29 per acre. It should be noted that the farmer is not concerned with custom harvesting costs, but rather custom harvesting prices. With wheat cutting going at \$3.00 in Oklahoma in 1948, and the average farmer cost amounting to \$2.29, there is incentive for farmers to purchase their own combines.

Figure 7 shows the costs of cutting wheat for farmer and the different custom groups. The farmers' costs are higher than all custom harvesters except the custom operators with five or more combines.

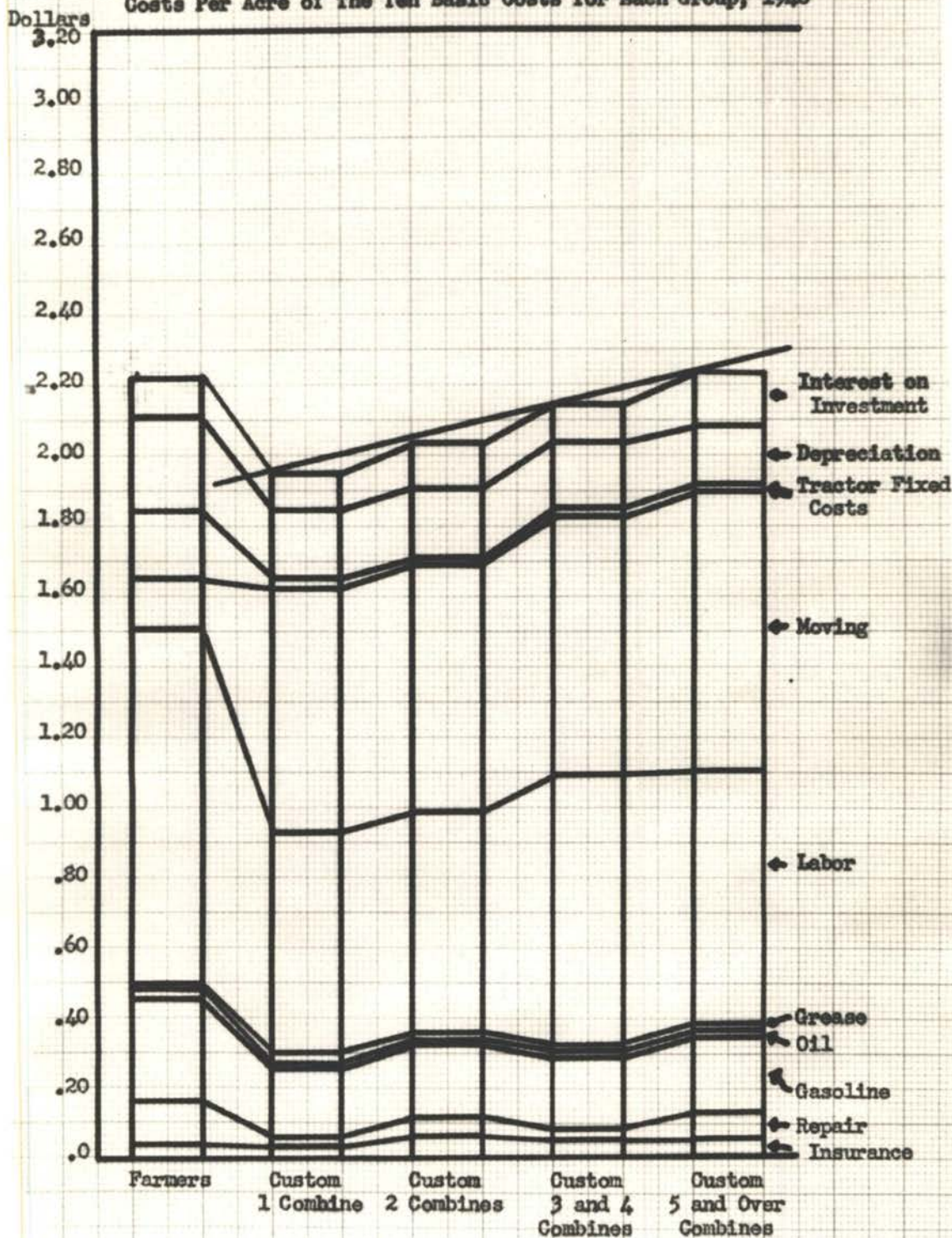
Figure 8 shows the total cost per acre for cutting wheat for farmers who cut between 0-300 acres and over 300 acres per combine, and for all sizes of custom harvesters by acres per combine. The definite pattern indicates that in all cases the one combine custom operator has a cost advantage. The trough in the middle of the graph indicates that there is a point of diminishing returns in acres per combine since those cutting between 1,001 and 2,000 acres have a cost advantage over the others. The reasons for this pattern will be shown later under specific costs.

#### Insurance;

Insurance generally represents a fixed cost, which will decrease constantly as acres per combine increase. Rates for farmers are much cheaper than rates for custom harvesters. Farmers' insurance is generally in an "All farm" policy, or merely fire, hail, and wind damage. Custom operators, on the other hand, face higher rates and carry more insurance. Few custom operators were found who had no insurance; however, many farmers carried no insurance whatsoever. It may be said, therefore, that the differences in insurance costs indicated by Figure 9 are differences in types and amounts of insurance carried.

Custom harvesters who are small and are just getting started frequently carry less insurance. They merely "take a chance." As has been pointed out earlier in this report, many one combine custom operators are farmers who are taking advantage of their machinery and labor; therefore, the

FIGURE 7. PER ACRE COSTS OF CUTTING WHEAT  
 FOR FARMERS AND THREE SIZES OF CUSTOM HARVESTERS  
 Costs Per Acre of The Ten Basic Costs for Each Group, 1948



Adapted from Appendix Tables 1, 2, 3, 4, and 5.

FIGURE 8. COSTS PER ACRE FOR CUTTING WHEAT BY NUMBER OF COMBINES  
IN THE UNIT AND BY ACRES PER COMBINE. FARMERS BY ACRES PER COMBINE.

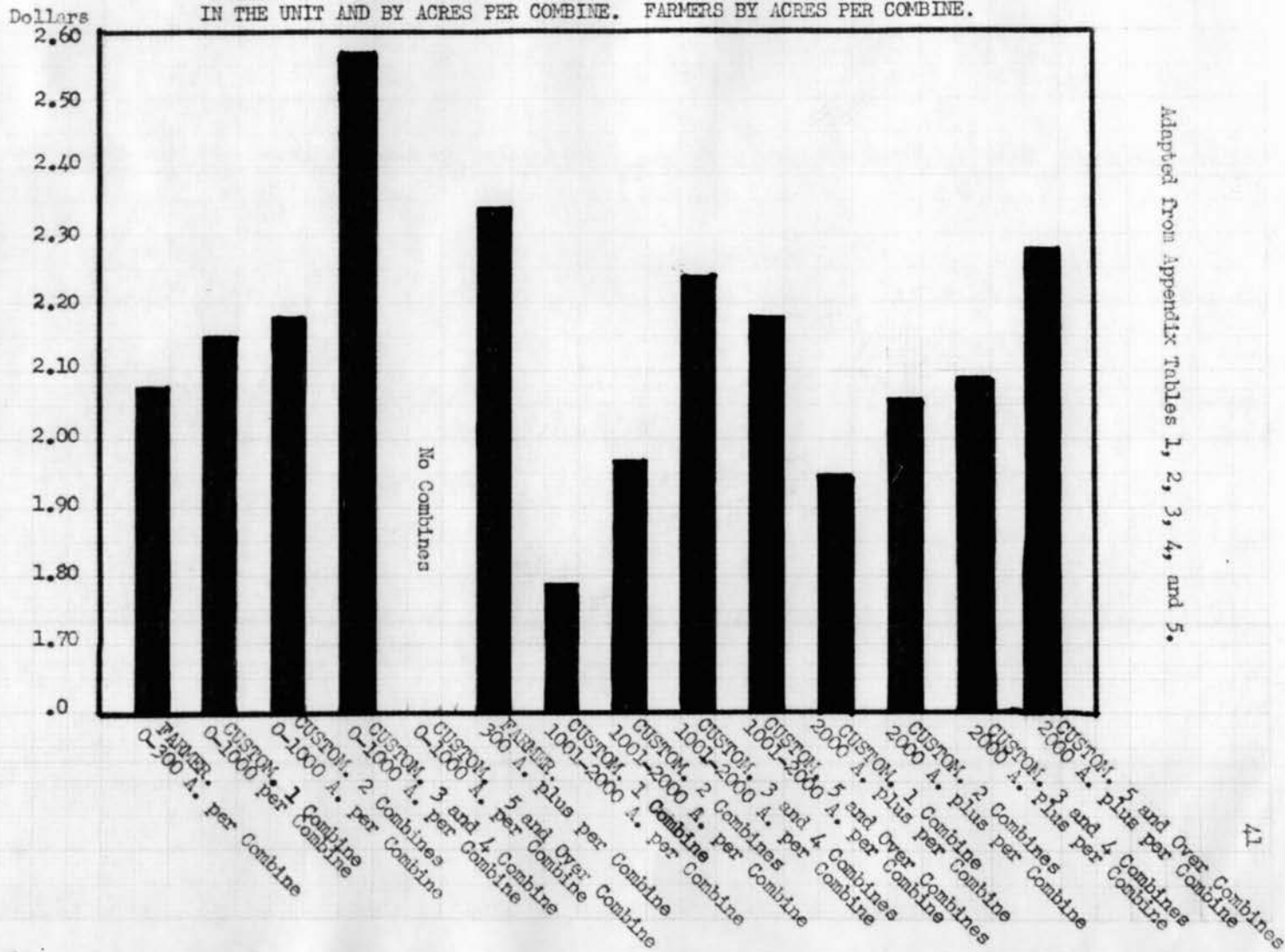
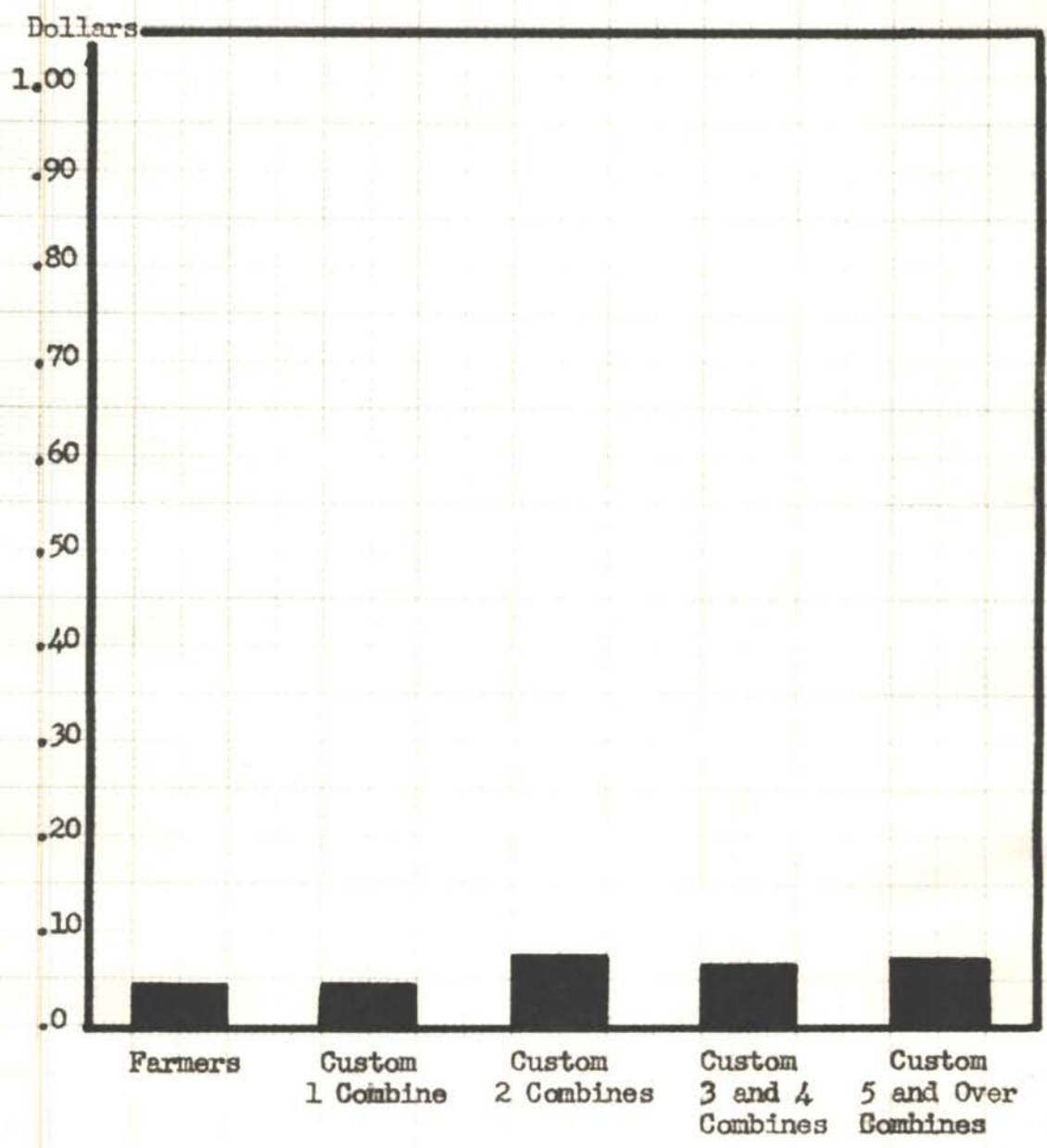




FIGURE 9. INSURANCE COSTS PER ACRE  
Farmers and Various Size Custom Harvesters, 1948



custom harvester with one combine falls into the same insurance cost pattern as does the farmer.

The two combine custom operator is basically a man who is in a critical stage in his normal development. The earlier breakdown of length of operation and number of combines (Table 1) shows that the logical pattern of development is for the operator to begin as a one combine operator, and then add a combine per year for the next two years. Profits from the foregone years form the financial backing for the subsequent additions. After one year's operation and the purchase of the second combine, the operator is in a strained financial condition. He has had a year's experience and has seen the element of chance involved and is aware of the hazards in the business. Knowing that he is in a strained financial condition and knowing the hazards involved, he logically insures with complete coverage. After the second year he may spread out farther, but he should be in a better financial condition and, logically, carry more of the risk himself.

A typical insurance pattern for custom operators is as follows: Those one combine custom harvesters carry liability, at least, and maybe another coverage or two such as windstorm, hail, or accident. They typically do not carry collision insurance because the cost is too high. State law in some states forces them to carry liability insurance, or post bond. They carry insurance rather than post bond. They feel that they need protection for and from the other fellows, but that they can risk the loss or damage of their own property.

Those in their second or third years usually carry liability plus collision. Some who are very risk conscious even carry insurance which protects the property of the farmer for whom they are cutting. One operator carried insurance which covered loss of wheat by the farmer for whom he was

cutting or would cut by fire, wind, hail, water or other loss. This particular operator had reason for this type of insurance. In 1947, a friend of his was cutting in Nebraska and had agreed to cut for another farmer after finishing the job he was then on. Mechanical trouble prevented his getting to the promised work when he had expected to get there. The farmer waited on this harvester, and while waiting suffered tremendous loss by hail. The farmer sued the operator for the amount of the loss by hail, charging that the loss was the harvester's fault since he had not gotten to the cutting as he had promised. The defendant received a favorable decision, but the possibility of similar court action was impressed in the minds of custom operators for miles around.

Fire insurance as well as liability is important to custom operators since fire is a great hazard. Combines and other internal combustion engines usually throw sparks resulting from incomplete combustion of fuel. Wheat fields which are dead ripe burn readily and when there is a strong wind the fire spreads at a rate which makes it very difficult to control. Many harvest hands smoke, and matches and cigarette butts present other fire hazards; therefore, fire insurance for custom harvesters is high in cost, but the need for it is great.

Many companies write insurance for custom operators. These policies usually cover the middle western states where wheat is grown and the policy covers only the harvesting season, usually only four months. These special policies are popular.

### Interest on Investment:

Interest on investment is a fixed cost which is important. The effect of added acres per combine which might be expected does not occur. This statement is true only because as more acres per combine are cut, additional equipment is bought. Large operators who hope to get over 2,000 acres per combine typically have additional equipment which the smaller operators do not have. House trailers, machine shop equipment, and other equipment are added as the acres per combine are increased; therefore, the interest on investment takes no definite pattern and varies little. The range of the interest is from 10 cents per acre for the custom harvesters with three and four combines to approximately 15 cents for the farmer.

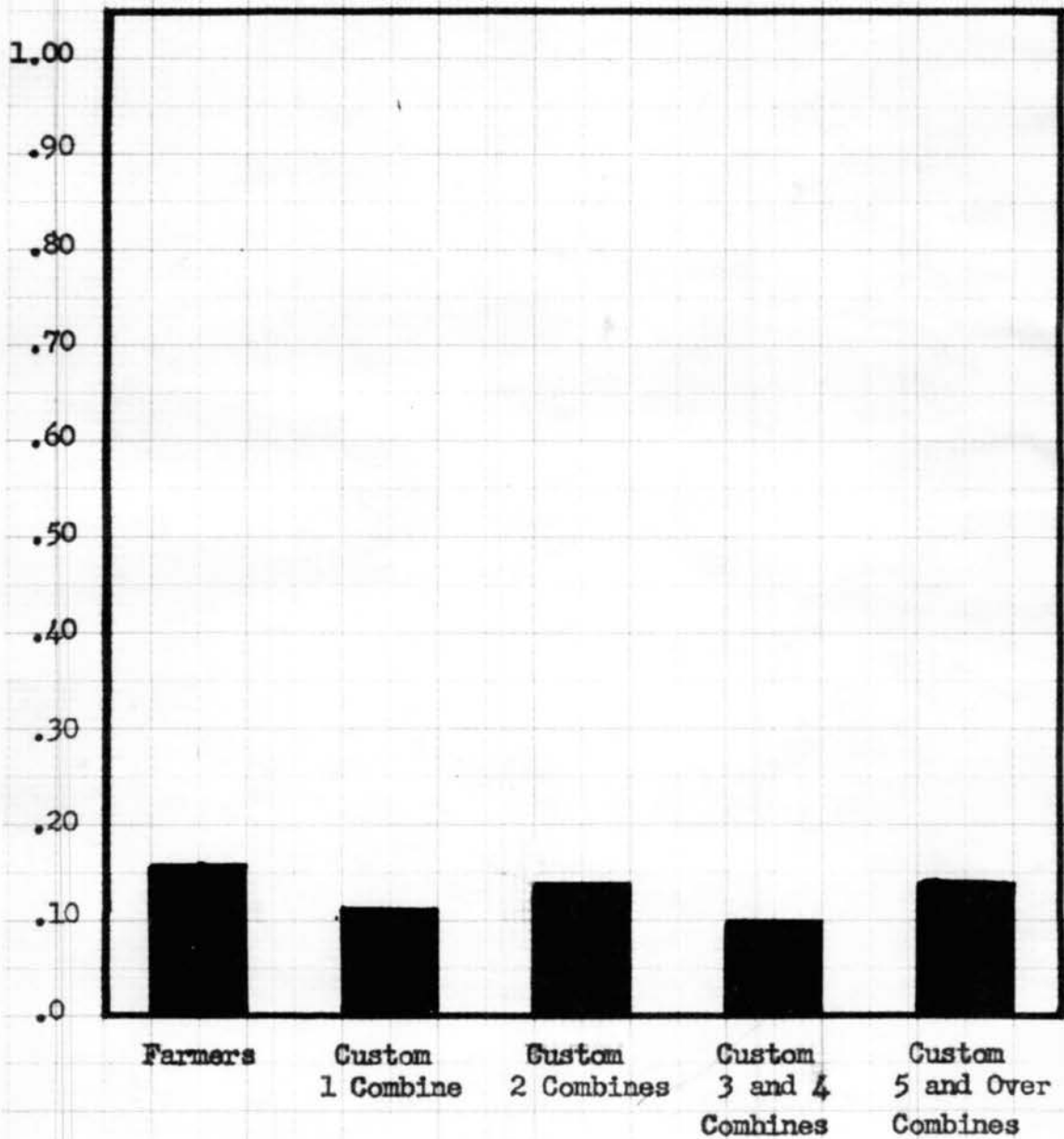
Interest on investment for the farmer is higher per acre cut due to the fact that farmers cut fewer acres than do custom operators.

For the purpose of analysis, 5 percent interest on the investment was used in this study. Five percent is the amount which may be expected on most sound first mortgages and is generally acceptable. Interest on investment does not include interest on investments in trucks or tractors, or automobiles used for harvest. Tractor investment is considered under a separate section. Trucks present a problem which this study does not cover. There is no way to determine from the information taken the income arriving to trucks because the mileage the grain is hauled varies greatly. Trucks are eliminated because they in themselves are a separate enterprise in many cases and have little connection with the harvester. Some operators have no trucks, but hire their combines moved and hire the grain hauled from them. When an automobile was present, its cost was considered under "Moving Costs." The costs of trucking the combine were also considered under "Moving Costs."

FIGURE 10. INTEREST ON INVESTMENT  
(5 Percent)

Total Investment Not Including Trucks or Tractors  
Farmers and Custom Harvester Groups, 1948

Dollars



1/ Investment on these items is taken care of under a separate section.

Many of the partnerships discussed earlier are truckers working in partnership with combine owners, the combine owner owning no trucks at all. The investigator has little information on trucking costs; therefore, the trucking problem is left out of the cost analysis. Automobiles are considered only as a joint cost.

#### Depreciation:

Combine depreciation is a fixed cost which may be divided into two subheads, obsolescence and wear and tear. Obsolescence is a true fixed cost and will become steadily smaller as acreage per combine increases, but wear and tear is partially variable and the cost allocated to it varies according to acreage covered and care given the machine. Table 3 shows a comparison of values when all the farmers' used combines were new, and now. The age of the machine and the intended acreage is also given. From this information the average straight line depreciation is calculated and this figure divided by the average intended acreage which gives a depreciation cost per acre.

The cost per acre for those farmers cutting less than 300 amounts to 36.3 cents while the cost for those cutting over 300 acres comes to 21.5 cents. Indications are that with farmers' combines the acreages cut are generally so small that obsolescence is far more important than wear and tear, for the cost pattern indicates a high degree of fixity in cost. Farmer depreciation per acre is high when compared to custom harvesters, basically, because of the small acres per combine cut by farmers.

Custom harvesters' depreciation is shown in Table 4. It is calculated in exactly the same manner as is the farmers' combine depreciation. Depreciation costs per acre for those custom operators cutting less than 1,000

Table 3. Farmer Owned Combine Depreciation

Code	: Number of : : Combines :	Present Value	: New Value :	: Age :	: Intended Acreage
	(Number)	(Dollars)	(Dollars)	(Years)	(Acres)
<u>0 - 300 Acres Per Combine</u>					
9F	1	600.00	1,200.00	10	250
10F	1	300.00	1,100.00	12	180
12F	1	800.00	1,300.00	10	250
13F	1	1,000.00	1,300.00	2	225
14F	1	600.00	1,000.00	4	300
16F	1	400.00	1,200.00	7	150
17F	1	1,000.00	1,200.00	2	200
18F	1	900.00	1,200.00	2	200
Totals		5,600.00	9,500.00	49	1,755
Total decrease in value (Dollars)					3,900.00
Average new value (Dollars)					1,187.50
Average decrease in value (Dollars)					487.50
Average age (Years)					6.125
Average annual (straight line) depreciation (Dollars)					79.59
Average intended to cut this year (Acre)					219.4
Depreciation per acre (Cents)					36.3
<u>301 Acres and Over Per Combine</u>					
20F	1	1,000.00	1,800.00	9	450
21F	1	700.00	1,600.00	12	585
22F	1	300.00	2,900.00	20	400
23F	1	400.00	1,200.00	10	350
1F	1	800.00	1,000.00	4	460
Totals		3,200.00	8,500.00	55	2,245
Total decrease in value (Dollars)					5,300.00
Average new value (Dollars)					1,700.00
Average decrease in value (Dollars)					1,060.00
Average age (Years)					11.00
Average annual (straight line) depreciation (Dollars)					96.36
Average intended to cut this year (Acre)					449.0
Depreciation per acre (Cents)					21.5

Table 4. Custom Harvester Combine Depreciation

Combine Harvesting																							
0-1000 Acres Per Combine					1001-2000 Acres Per Combine					2001-3000 Acres Per Combine					3000 Acres and Over Per Combine								
:Number:	:	:	:	In-	:	:Number:	:	:	In-	:	:Number:	:	:	In-	:	:Number:	:	:	In-				
Code	of	New	Present	Years	tended	Code	of	New	Present	Years	tended	Code	of	New	Present	Years	tended	Code	of	New	Present	Years	tended
:Com-	Price	Value	Usage	Acres	:	:Com-	Price	Value	Usage	Acres	:	:Com-	Price	Value	Usage	Acres	:	:Com-	Price	Value	Usage	Acres	
:bines	:	:	:	age	:	:bines	:	:	:	age	:	:bines	:	:	:	age	:	:bines	:	:	:	age	
(Number)	(Dollars)	(Years)	(Acres)	(Number)	(Dollars)	(Years)	(Acres)	(Number)	(Dollars)	(Years)	(Acres)	(Number)	(Dollars)	(Years)	(Acres)	(Number)	(Dollars)	(Years)	(Acres)				
18	2	4,400.00	2,000.00	10	1,763	3	4	12,085.00	11,000.00	15	8,000	29	1	4,000.00	3,800.00	1	2,398	13	3	1,200.00	10,800.00	3	12,000
65	2	4,400.00	4,000.00	4	1,000	22	4	11,000.00	10,000.00	16	8,000	32	2	7,200.00	6,000.00	3	4,502	19	1	6,500.00	5,000.00	2	4,500
66	3	7,800.00	6,000.00	10	2,000	24	3	19,500.00	9,000.00	12	4,000	36	5	30,000.00	20,000.00	6	10,300	33	1	3,200.00	3,000.00	1	4,795
5	1	1,000.00	800.00	1	200	37	1	6,000.00	5,500.00	1	1,732	53	7	35,500.00	28,000.00	21	15,554	16	2	8,800.00	6,000.00	8	7,200
52	1	1,800.00	1,200.00	10	720	54	3	11,400.00	10,500.00	7	3,140	71	2	7,600.00	7,150.00	2	4,335						
						59	5	18,000.00	15,000.00	10	10,000	12	1	3,200.00	3,600.00	1	2,100						
						64	2	8,000.00	7,000.00	8	4,000	39	1	4,500.00	3,600.00	1	2,700						
						68	2	7,300.00	6,500.00	5	2,600	70	1	3,800.00	3,000.00	3	2,300						
						7	1	3,800.00	3,000.00	1	1,200												
						11	1	5,500.00	3,000.00	1	2,000												
<b>Totals</b>																							
	9	19,400.00	14,000.00	35	5,683		26	102,585.00	80,500.00	76	44,622		20	95,800.00	74,550.00	38	44,189		7	30,500.00	24,800.00	14	28,495
Total Decrease in Value (Dollars)					5,400.00				22,085.00						21,250.00				5,700.00				
Average New Price (Dollars)					2,155.55				3,945.57						4,790.00				4,357.10				
Average Decrease in Value (Dollars)					600.00				849.42						1,062.50				814.28				
Average Age (Years)					3.89				2.92						1.90				2.0				
Average Annual Depreciation (Dollars)					154.24				290.90						559.21				407.14				
Average Acreage to Be Cut (Acres)					631.4				1,718.2						2,209.5				4,070.70				
Depreciation Per Acre (Cents)					24.4				16.9						25.3				10.0				



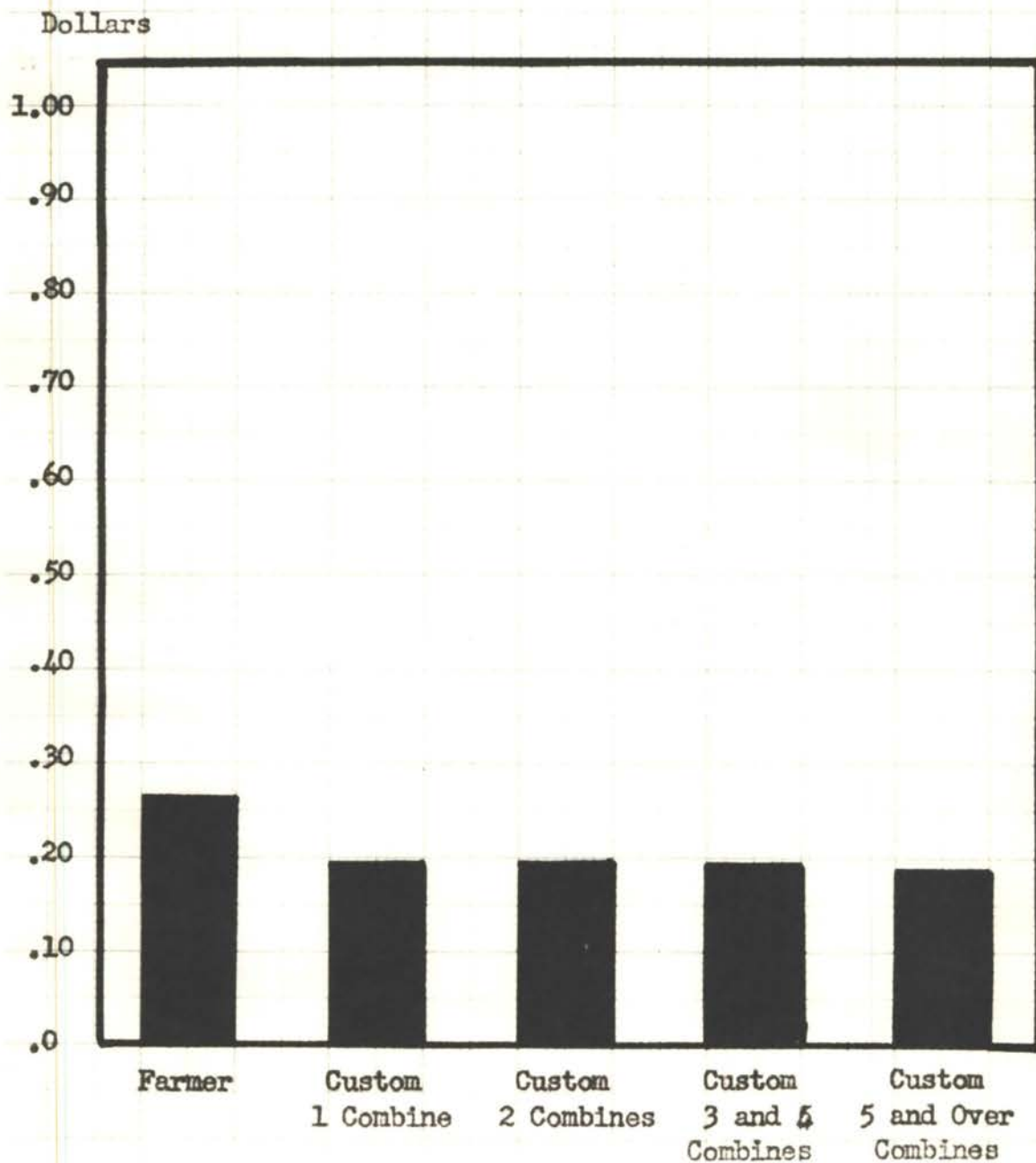
acres amounts to 24.4 cents per acre. Depreciation for those cutting between 1001-2000 acres amounts to 16.9 cents. Then as acreage per combine is increased to between 2000-3000 acres per combine, the depreciation cost goes up to 25.3 cents. The combine depreciation therefore begins to take the characteristic U shape found in variable cost curves, but an additional increase to over 3,000 acres causes depreciation to decrease to 10 cents per acre.

The upward trend in depreciation cost per acre after 2,000 acres have been cut is logical. The average age of combines cutting between 2000-3000 acres was 1.90 years, while the average age of those cutting between 1001-2000 acres was 2.92 years and the average age of those cutting less than 1,000 acres 3.69 years. Those men who cut big acreages ran new machines, and the average age indicates they trade them frequently rather than repair them. This process of running a machine as long as possible and keeping repairs to a minimum until it is traded will substitute some normal repair costs into the depreciation account; therefore, depreciation is higher.

As acreage is increased to over 3,000 acres, again depreciation decreases. In order to physically cut the 4,070 acres harvested by each of the machines in the group harvesting over 3,000 acres, the combine must be kept in fair condition. The average age of all combines other than new was only two years. The age of these combines compares favorably with those in the 2001-3000 acre group where the average age was 1.90 years.

The improvement in condition in which the combine must be maintained is shown by the fact that the average annual decrease in value was \$152.07 less for those cutting over 3,000 acres than it was for those cutting between 2001-3000 acres. This reduction in annual decrease in value causes a substantial decrease in depreciation costs per acre.

FIGURE 11. COMBINE DEPRECIATION  
COSTS PER ACRE  
Farmers and Various Size Custom Harvesters, 1948



In addition, the increase in acreage harvested further decreases the depreciation to where those harvesting over 3,000 acres per combine have a depreciation cost of only 10 cents per acre.

Economic theory recognizes variations such as those shown in depreciation. Figure 16 shows that a series of short-run U shaped curves<sup>3</sup> constitute the make-up of the typical long-run curve. The depreciation figures found indicate that up to 3,000 acres per combine may represent one short-run curve and over 3,000 acres may be the beginning of a second such curve. Physical limitations prevent the determination of this second short-run curve because 4,000 acres is nearing the maximum acreage which one combine can harvest.

#### Repairs:

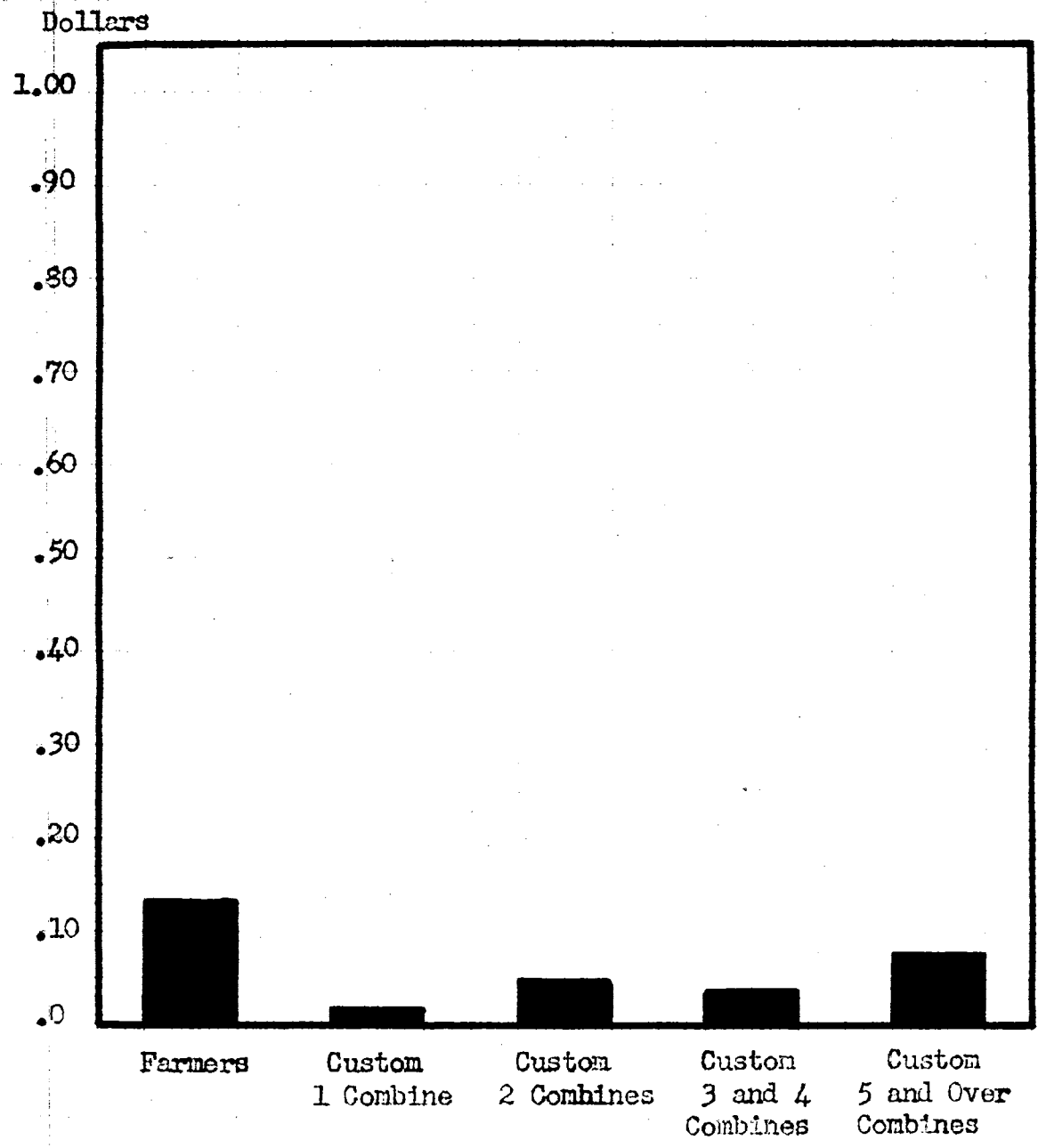
A great deal of variation in repair costs is found among those who cut wheat. Farmers generally spend more per acre for repairs than do custom harvesters. This is true because farmers, who cut smaller acreages, run smaller, less expensive, and older combines. Table 3 indicates that farmers frequently run combines which are eight to 12 years old, and some combines were found which were as old as 20 years. Custom operators, on the other hand, seldom used combines more than four years old. As a combine gets older, more and more of it becomes worn and must be replaced.

The repairs per acre for the one combine custom harvesters are less for several reasons. A very high percentage of the one combine custom operators' combines were new. The expected acreage for the one combine group was much lower (Figure 6). And finally, the one combine units are basically operated by the owner who should be more careful than the average hired driver.

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<sup>3</sup> For a discussion see John F. Due, Intermediate Economic Analysis, 1947, pp. 97-99.

FIGURE 12. REPAIRS  
COSTS PER ACRE  
Farmers and Various Size Custom Harvesters  
1948



In the section on length of operation and size of unit it has been pointed out that custom operators build from a small start into larger units. Generally the first combine is kept when the second is added. Then the third year when a third combine is added the first two are kept, therefore, in the larger units are found a mixture of old and new combines. Some operators do not follow this pattern, but the pattern is typical. Few large operators were found who had all new combines. The added age of the various combines found in the larger groups tends to increase the repair costs. Also, hired drivers must be used who have less interest in the combine than do the owner drivers.

#### Tractor Fixed Costs:

No information was gathered from primary sources during this study on the fixed costs of tractor power where it was needed. Fuel, oil, and labor costs were taken in the schedule, but nothing else. For this reason, it is necessary to calculate tractor costs and gather information from secondary sources.

In Table 5 is found a listing of tractors which typically pull conventional combines and the approximate list prices or prices of last sale made by local machinery dealers. It must be noted that prices on all models vary, depending on freight and equipment at time of delivery.

These tractors are the ones which typically pull various conventional combines for both farmers and custom harvesters; therefore, a new value of \$1,800.00 is assumed for the tractor.

Table 5. Prices of Tractors Pulling Conventional Combines

Make	Model	Price
		(Dollars)
John Deere	D	2,900.00
John Deere	M	1,374.00
John Deere	A	2,188.00
McCormick Deering	H	1,800.00
McCormick Deering	M	2,232.00
Ford		1,400.00
Jeep		1,600.00
Allis-Chalmers	WD	1,585.00
Case	C	1,550.00
Case	VAC	1,417.00
Case	SC	1,765.00
Average Value		1,801.00

If 5 percent is used as the annual depreciation and a rate of 5 percent is allowed for interest on investment, the annual depreciation and interest on investment amounts of \$180.00

The average hours used per year for tractors in Garfield County, Oklahoma was found to be 478 or approximately 40, 12-hour days per year. The average repair costs per year was found to be \$38.00. This \$38.00 undoubtedly is too small today due to the increase in the price of repairs; therefore, it is weighted and adjusted on the basis of the December, 1947 index of farm machinery costs which brings the annual repair cost to \$53.58 or \$1.35 per operating day.<sup>4</sup>

Interest on investment, depreciation, and repair costs amount to \$5.85 per working day to be charged to conventional combines which are farmer operated.

<sup>4</sup> United States Department of Agriculture, Bureau of Agricultural Economics, The Farm Cost Situation, March, 1948, p. 2.

Custom harvesters were figured on the same basis, but were allowed a range in days used per year. Certain custom operators' seasons include more than 40 cutting days. In order to cut 2,000 acres per combine with a daily average of 40 acres, a harvest would have to last 50 days, which is a usage of 600 hours for harvest alone. It is logical, therefore, to expect the tractors used by operators who cut 2,000 acres or over per machine to work their tractors 800 or more hours per year, which will decrease the daily investment, depreciation, and repair cost. Ladd Haystead quoting from a University of Nebraska Experiment Station Publication of 1942 points out that tractors rated 11 to 30 horsepower, when used 100 to 200 hours per year had a fixed plus operating cost of 7.4 cents per drawbar horsepower hour. When usage was increased to 600 hours, the cost dropped to 1.5 cents.<sup>5</sup>

For purposes of analysis, it is therefore assumed that those custom harvesters cutting over 2,000 acres per combine use their tractor 800 hours, or 66.67 days per year, those cutting from 1001-2000 acres per combine use theirs 600 hours, or 50 days, and those cutting less than 1,000 acres, 478 hours or 40 working days. Those cutting less than 1,000 acres should not vary greatly from the annual usage found on most farms.

Based on the above assumed volume of annual work, the tractor investment, depreciation, and repair cost for those custom operators cutting less than 1,000 acres amounts to \$5.85 per day. Those cutting between 1001-2000 acres \$4.68 per day, and those cutting over 2,000 acres \$3.51.

Figure 13 shows the tractor fixed costs for custom harvesters by size of operator and for farmers. The primary factor which causes farmer tractor

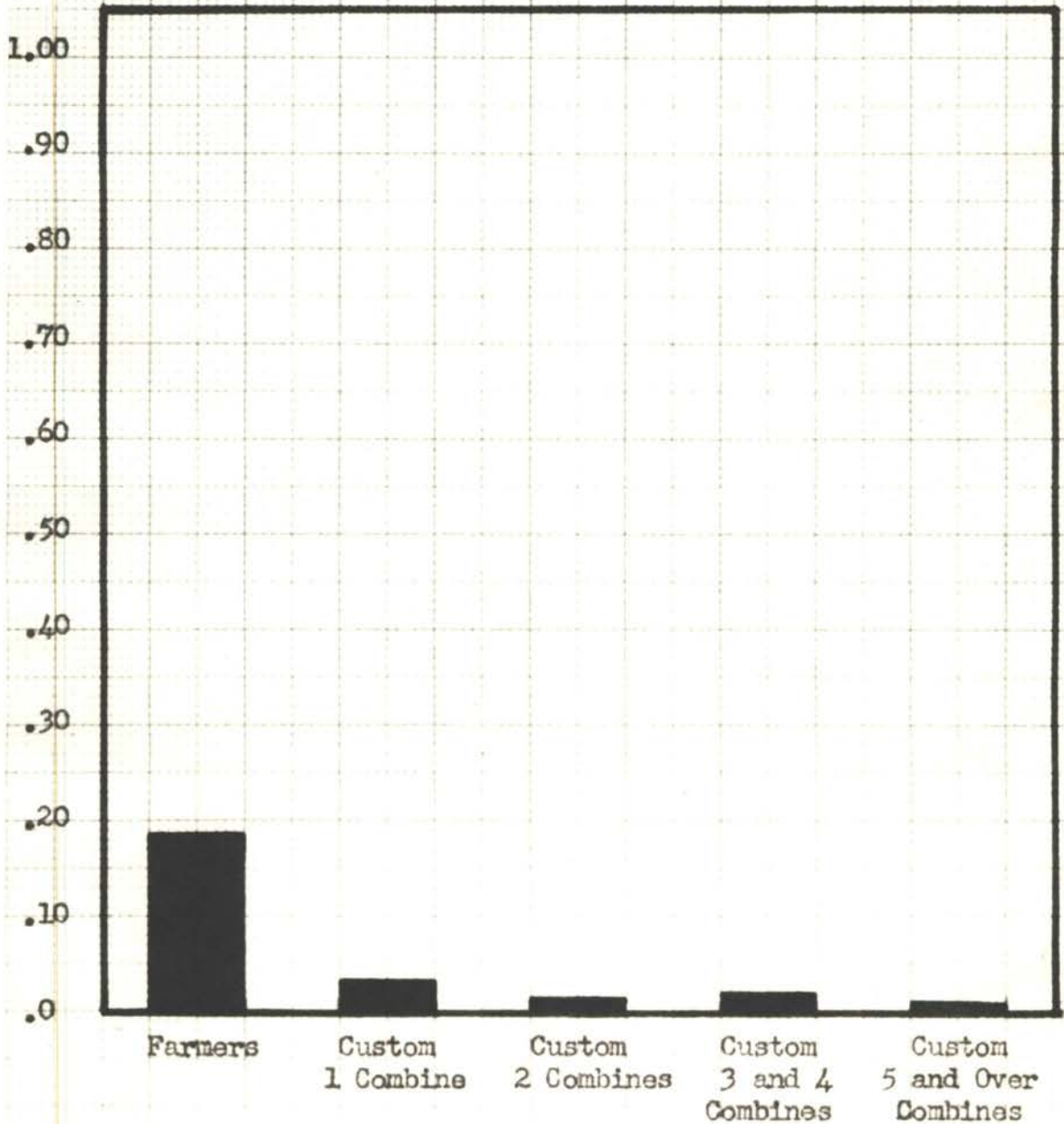
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<sup>5</sup> Ladd Haystead, "Can Farmers Afford Their New Tools," Fortune, XXIV, No. 3 (September, 1946), p. 17.

FIGURE 13. TRACTOR FIXED COSTS  
COSTS PER ACRE

Depreciation, Interest on Investment, and Repairs, 1948

Dollars





costs to be abnormally high is the fact that farmers own conventional machines which require tractor power; whereas, custom operators own many self-propelled combines. It may be said that the difference in tractor costs is a matter of type of combine rather than efficiency of either farmer or custom harvester size group.

#### Moving Costs:

Moving costs constitute one of the largest single costs for the custom operator. A harvester who had been doing full-time custom harvesting for 12 years reported, "Moving is my largest single cost."

Included in moving costs are those costs which involve finding work and the actual costs of moving. Automobiles are typically taken along to serve as a general means of transportation. Much of the time these cars are used as a means of transportation to find new jobs. Since the automobile is a joint cost, exact figures could not be obtained, but each man merely used his own judgment in deciding what portion of his gross returns went for moving. Telephone and telegraph bills which are associated with moving are included here. As has been pointed out earlier in this report, some operators did large amounts of telephoning in order to keep in contact with the farmers for whom they intended to cut. One four-machine custom harvester had run up a \$38.00 telephone and telegraph bill in four days while at Cordell, Oklahoma. Another factor involved is the danger in moving. Moving represents more risk than operation of the combines. Six self-propelled combines were discovered in a town in southwest Oklahoma which were in the process of being repaired after coming through the underpass at Clinton. The underpass is not high enough to take certain makes of self-propelled combines when they are loaded. The underpass will not accommodate them, therefore, many inexperienced operators misjudge and wrecked clean grain elevators and grain tanks are the result.

Another dangerous item involves wide platforms on the highway. Approximately one-half of the custom operators do not remove their platforms while traveling; therefore, the load width is at least 12 feet, and in many cases 14 feet. Most improved roads in Oklahoma are not over 18 feet wide and in many cases a foot or so of the curb is broken and unsafe. What happens when two combines either loaded or towed meet? Or what happens when a large transport truck and a 14 foot combine meet? It is not uncommon to see platforms that have been smashed up. The investigator interviewed four operators who had had accidents involving smashed platforms this year. If the operator has collision insurance, this danger is not a cost, but it was pointed out earlier in this report that most custom harvesters do not carry collision insurance because it is so high in cost; therefore, this risk is a cost to them.

The other costs in moving are the normal ones which might be expected by anyone. Those operators who do not have trucks usually hire a truck to move them, or they have arrangements with a partner who trucks the wheat they cut. In return for the good will the trucker moves the harvester and gets only his variable costs. Normally, the combine owner will buy the gasoline, feed the driver, and pay his wages if any. It takes several hours to remove the platform because the sideboards of the truck, the high air intake pipes, and exhaust pipes must be removed. Miscellaneous adjustments must be made. Then it is a bigger job to replace the platform after moving. Also after moving, the combine is always checked and greased, even though the regular greasing time has not arrived. The jolt and jar of transporting forces the grease from the bottom of the various shafts, and the combine must be greased before cutting more wheat.

Another factor involved in moving, although there may be basis for argument that it is not a true moving cost, is that time spent standing idle and waiting for grain to ripen, or merely standing idle while searching for work. Generally, combine owners feel obligated at least to feed their help while they are standing idle. Some do not. If the combine operator feeds his men, or pays them wages whether they work or not, his costs are increased and these costs are included in moving costs in this report. In this thesis these costs are considered moving costs because they are costs which occur between the time the combine stops cutting on one job and the time it starts cutting on another job.

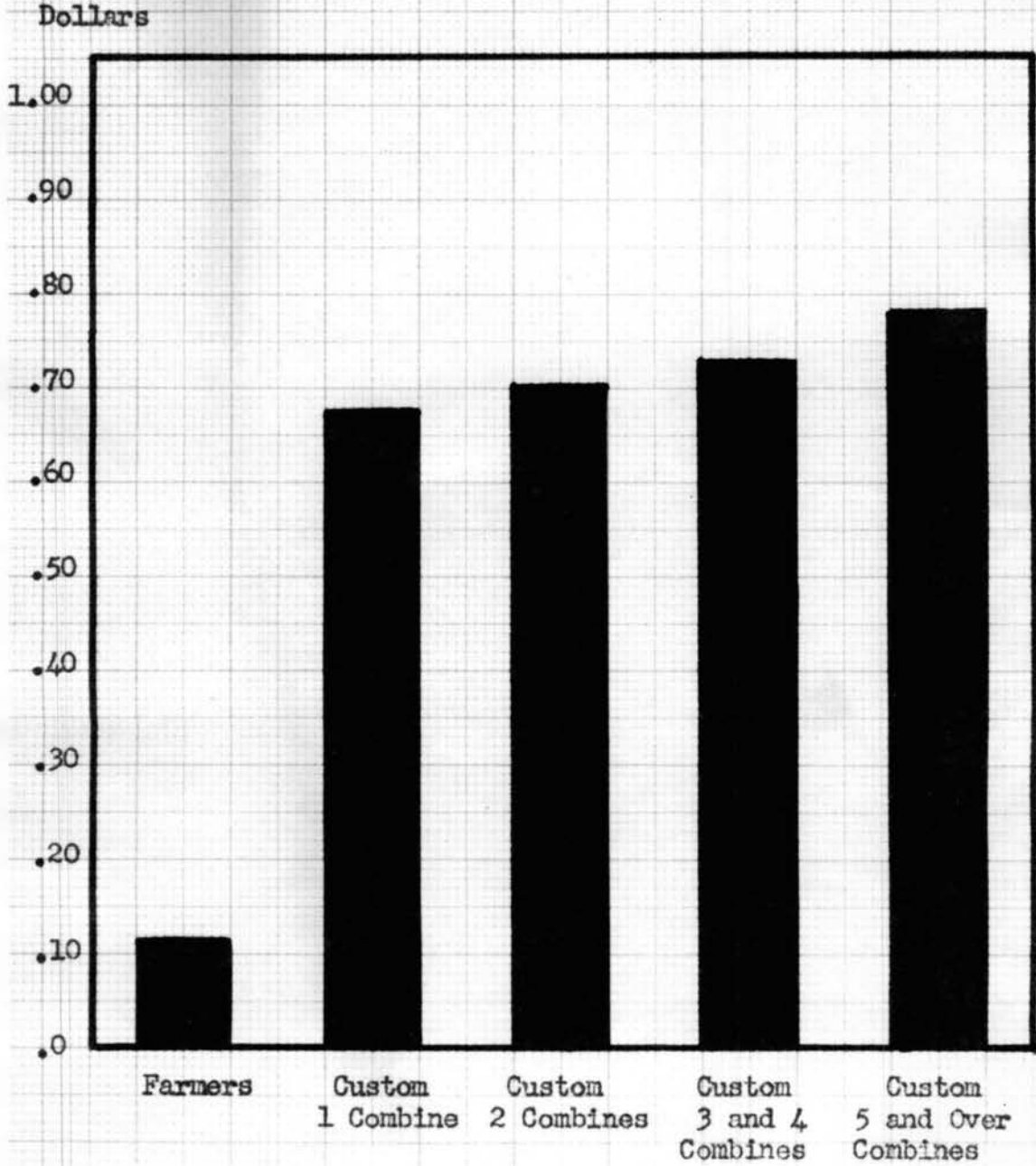
The question was asked, "What percentage of your gross returns go for moving?" The modal answer was "25 percent."

Operator Number 31 left McDonald, Kansas on a Thursday in May, 1948. He had to his credit some \$600.00. He used a day to day bookkeeping system. When he started cutting with his four combines at Frederick, Oklahoma the following Saturday afternoon he balanced his books and found that it had cost him approximately \$450.00 to get moved, set up, and started.

A five-machine outfit interviewed in the Panhandle of Oklahoma reported that it had cost them \$3,600.00 to repair their combines and move from Montana. Twelve hundred of the \$3,600.00 was supposed to have been used in moving.

Farmers have less moving cost than custom harvesters (Figure 14). Farmers in this thesis are not considered farmers unless they cut at least one-third of the intended acreage for themselves. Their land may be scattered, which involves a moving cost, but it is only a fraction of what the custom harvester involves. One farmer who farms 320 acres here in Oklahoma, lives and farms other land in Parsons, Kansas, so he has a fairly high moving cost,

FIGURE 14. MOVING  
COSTS PER ACRE  
Farmers and Various Size Custom Harvesters, 1948



but even so, it does not compare with the typical custom operator who moves across the country.

The one combine custom operator spends less for moving than any of the larger custom operators. The general upward trend indicates that moving is more of a problem for the larger operators. The reason is simply that the larger the harvester, the more he has to move. He has more in proportion. One combine operators do not have the machine shops, house trailers, diners, and other equipment to move that the larger operators have; therefore, one would expect the one combine operators' costs to be lower. Also, the trucking of five or six combines does not involve assembly line tactics and there are no economies of large-scale operation. The task is one of loading five or six individual combines with less supervision by the boss and with a higher percentage of hired labor; therefore, less efficiency.

#### Labor Costs:

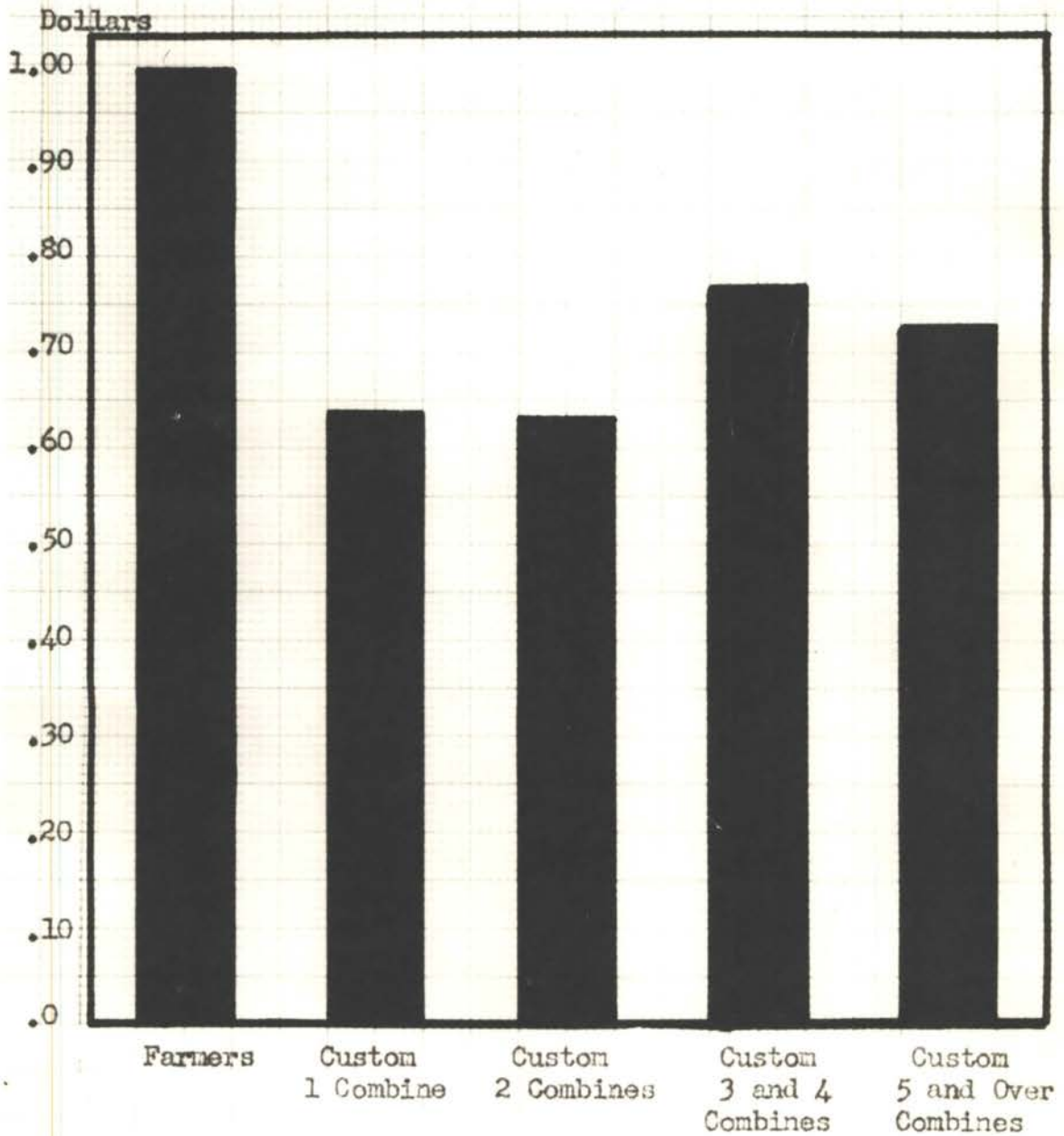
Labor costs for farmers are higher than for any group of custom operators (Figure 15). Smaller machines, older machines, and few acres per day account for this difference. A six foot combine working for a farmer and averaging 25 acres per day requires the same amount of labor as does a 20 foot self-propelled combine which will average 80 acres per day.

Close examination of the cost pattern established by custom harvesters indicates that it follows the normal cost pattern found in business. Long-run cost is made up of a series of U shaped curves which are the short-run cost.<sup>6</sup> (See Figure 16).

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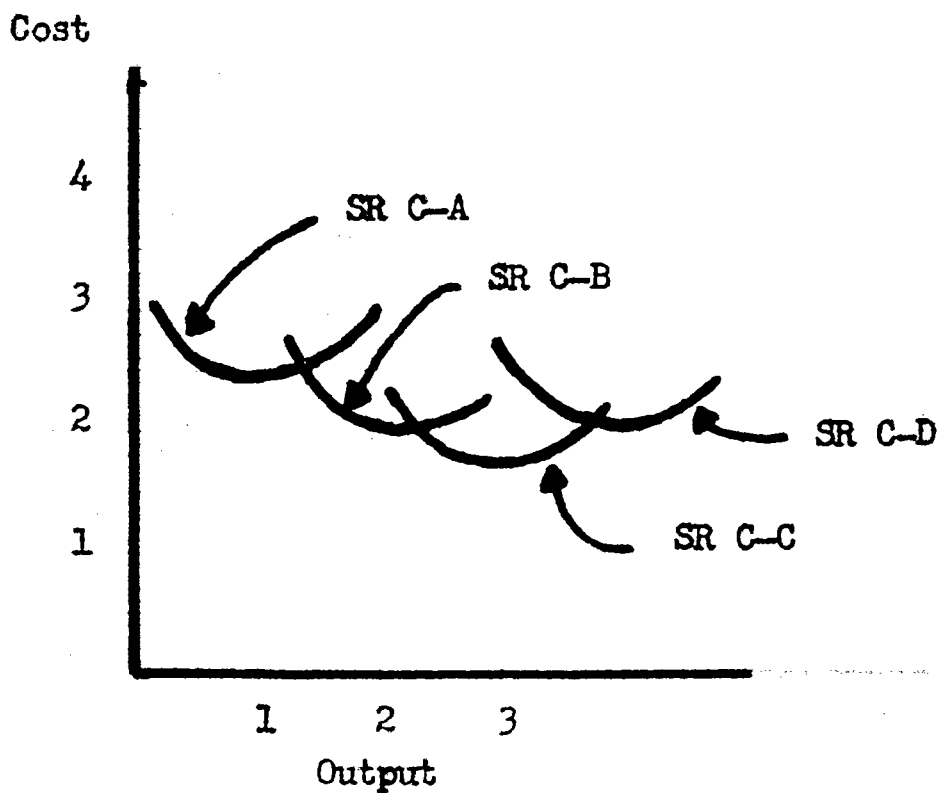
<sup>6</sup> Due, *Op. cit.*, pp. 97-99.

FIGURE 15. LABOR <sup>1/</sup>  
COSTS PER ACRE  
Farmers and Various Size Custom Harvesters, 1948



<sup>1/</sup> Includes Family Labor.

FIGURE 16. SERIES OF SHORT-RUN COSTS MAKE UP THE LONG-RUN COST PATTERN



SOURCE: Reproduced from John F. Due, Intermediate Economic Analysis, 1947, p. 97.

Figure 16 shows a hypothetical long-run cost curve constructed of the various short-run cost curves. Figure 15 indicates that labor costs, generally, are increasing as the size of unit increases in the industry. This addition of a manager or managers as the size of unit increases is probably the real jump from one size unit to another.

An "Old Timer" in the custom harvesting business told the investigator that a custom harvester needed a manager for every two machines. Statistics bear out that he knew from experience what he was talking about. Between the one combine group and the three and four combine groups is a short-run U shaped labor cost curve. With the addition of managers, the labor costs drop, forming a part of another U shaped short-run cost curve. Using the same size combines, custom cutting cannot be a decreasing labor cost industry. There are certain operations which must be performed. They cannot be broken down; therefore, as the size of the cutting unit increases and additional managers become necessary, labor costs must go up. Greatest labor efficiency comes in the one combine custom harvester group.

#### Gasoline:

Gasoline costs per acre vary little among the various custom harvester groups (Figure 17). The same kinds of machines appeared in each of the various groups and gasoline per acre depends on the efficiency of the machine rather than the organization of the custom harvester.

Farmers used more gasoline per acre because they use smaller combines and waste more power. A gasoline engine, unlike an electric motor, uses a minimum amount of gasoline no matter what the load. If a heavy tractor is used to pull a light load, the same amount of power is used to propel the tractor itself as would be used if a heavy load were pulled. When a heavy



**FIGURE 17. GASOLINE  
COSTS PER ACRE  
Farmers and Various Size Custom Harvesters, 1948**

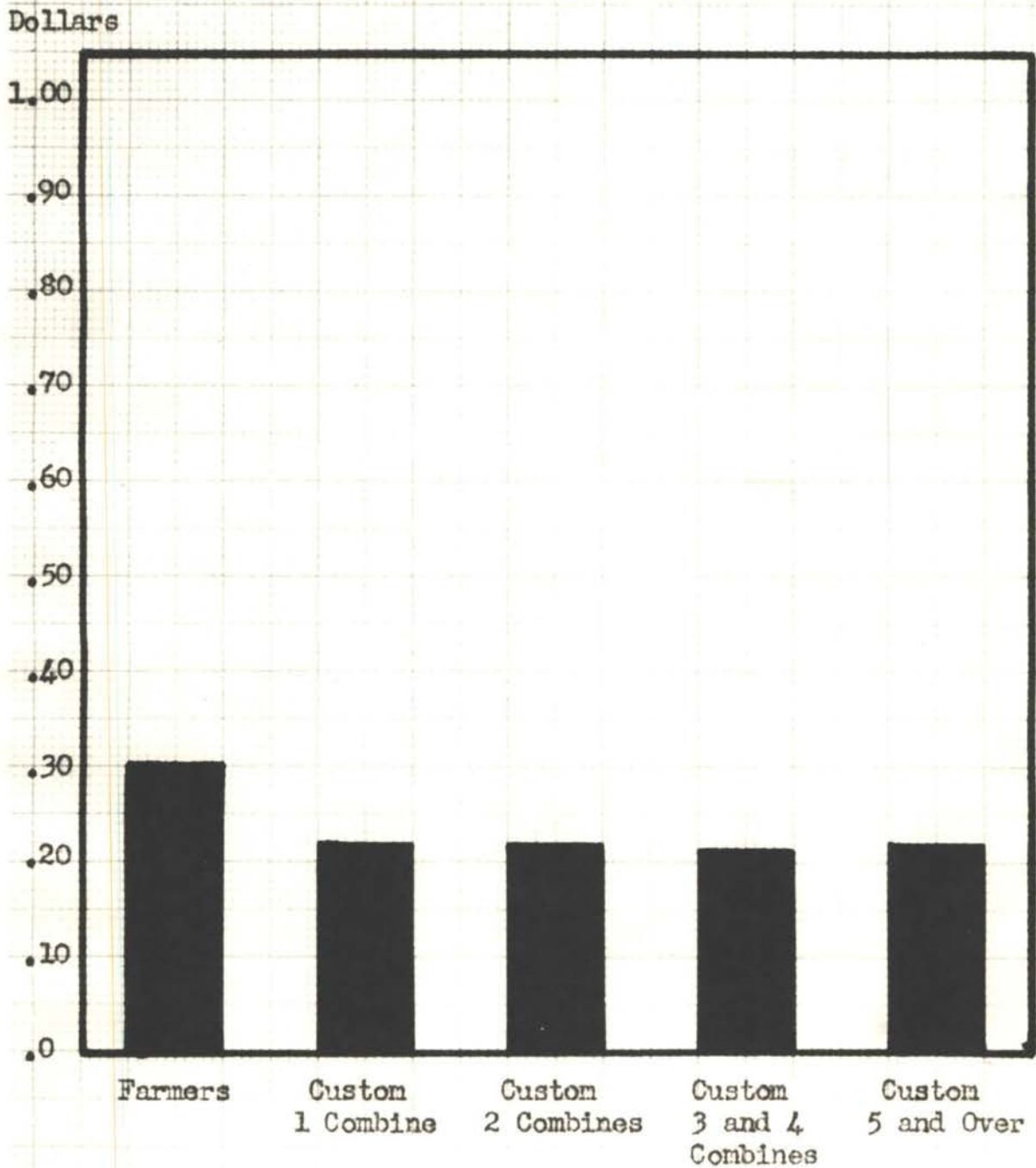
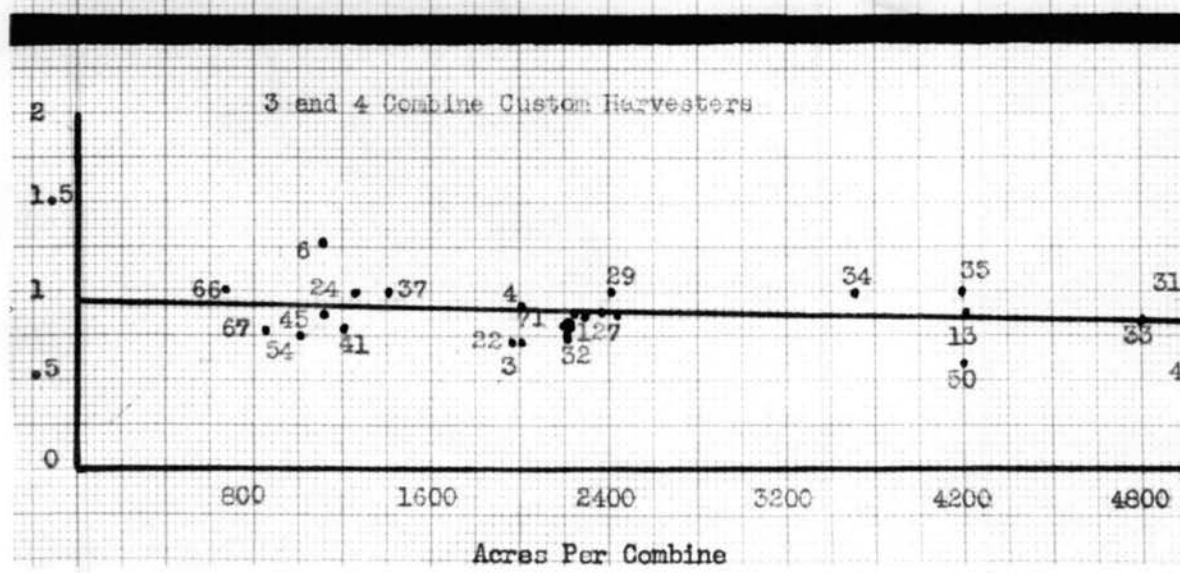
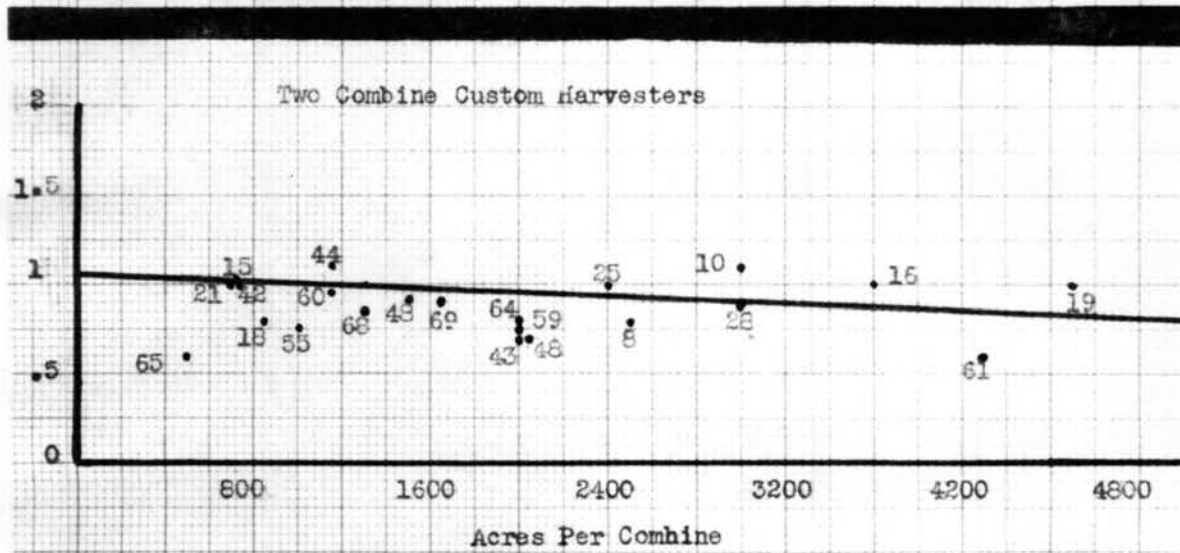
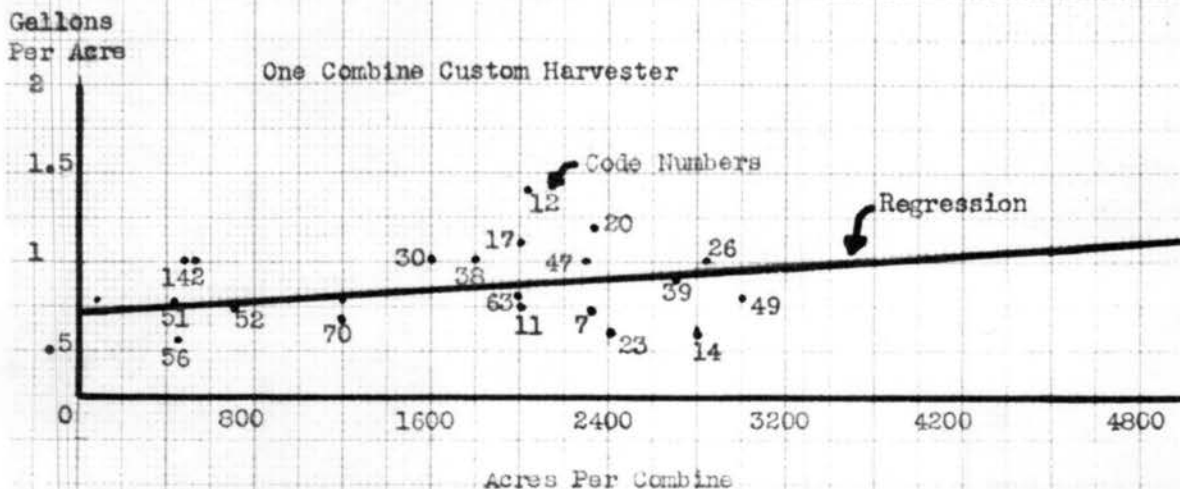
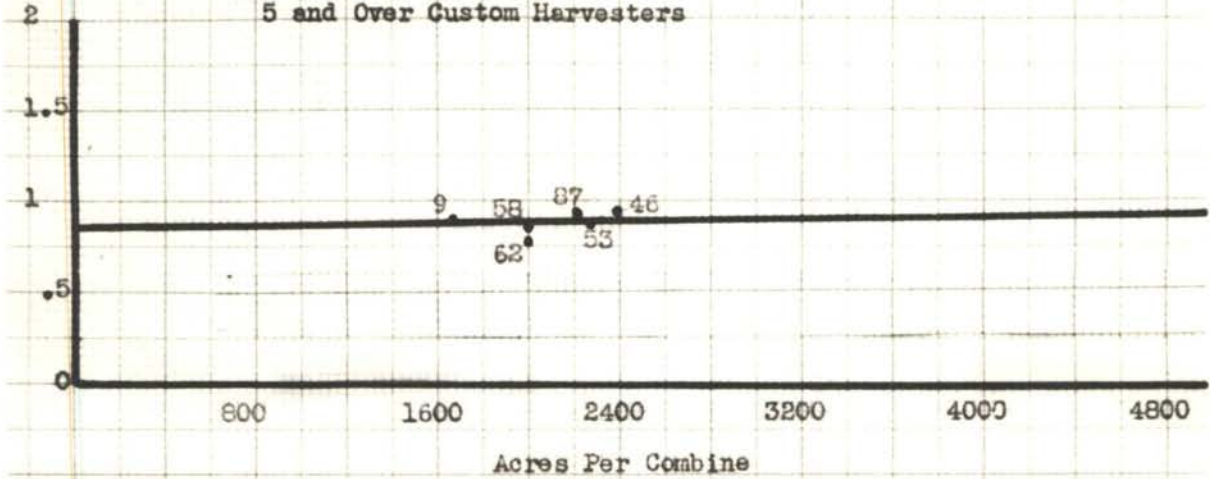


FIGURE 18. SCATTER DIAGRAM OF GASOLINE USED PER ACRE, 1948

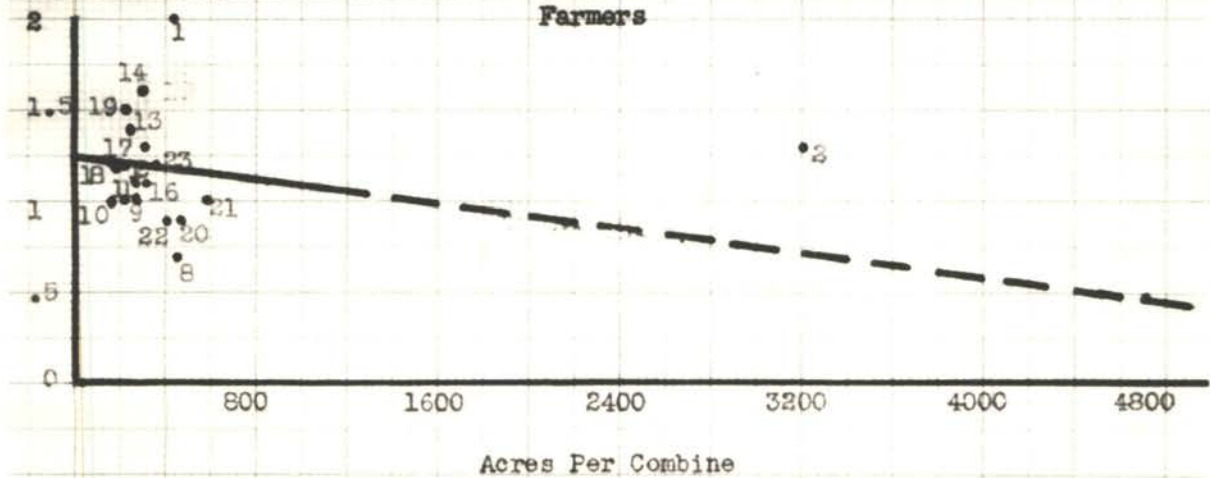


Gallons  
Per Acre

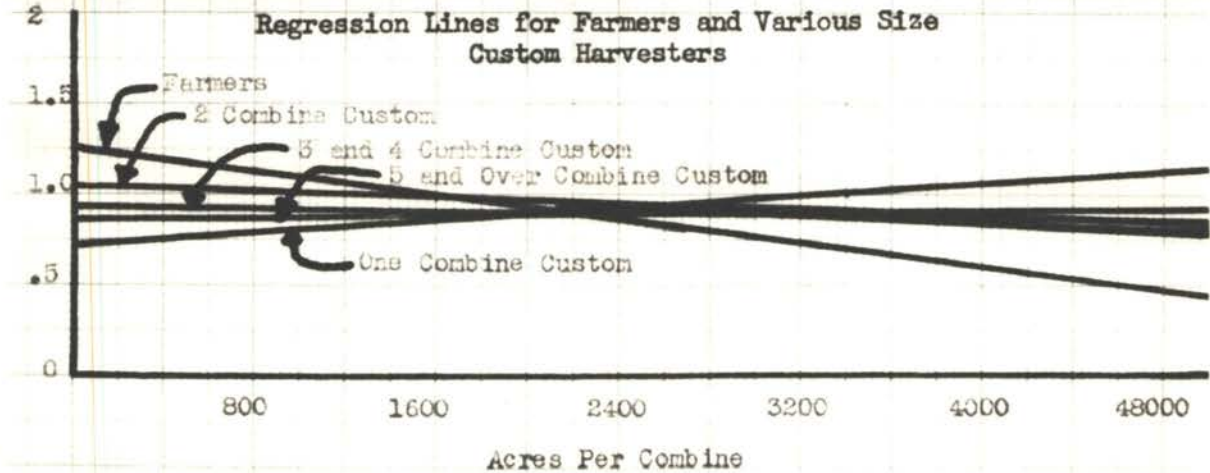
5 and Over Custom Harvesters



Farmers



Regression Lines for Farmers and Various Size  
Custom Harvesters



tractor is used on a light combine, inefficiencies arise. The farmer who has only one tractor buys his tractor with the idea in mind of matching his power to all his work. A six foot combine will cut all the wheat for which a three-plow tractor can prepare the seed bed and sow; therefore, the tractor may not be matched to the combine in the case of many farmers. Self-propelled combines have built into them the power unit engineered for efficiency in handling the load at hand.

The efficiency of conventional combines pulled with tractors well matched to the load requirement compared favorably with self-propelled combines. There was not enough distinction in the relative efficiencies of the two types of combines to justify a study of the subject.

The scatter diagram shown in Figure 18, when compared with Figure 17, shows that there is a greater range among individuals than there is among groups. Some harvesters are more skilled and operate more efficiently. Certain combines are more efficient. The high degree of scatter found in Figure 18 indicates little correlation between acres per combine and combine efficiency.

#### Miscellaneous Costs:

Included in miscellaneous costs are oil, grease, and other costs not accounted for any place else. Tables 1, 2, 3, 4, and 5, in Appendix A include oil and grease costs. These costs are plotted in Figure 7 of this report. The difference in oil and grease costs is of minor importance when compared with the other costs.

Oil and grease normally cost approximately a cent per acre for each. The custom harvesters endeavor to keep their engines in good condition; therefore, a normal oil change was usually the only oil involved. Wider variations

were found in grease costs; however, the wider variation seldom caused a total cost variation of over one cent per acre.

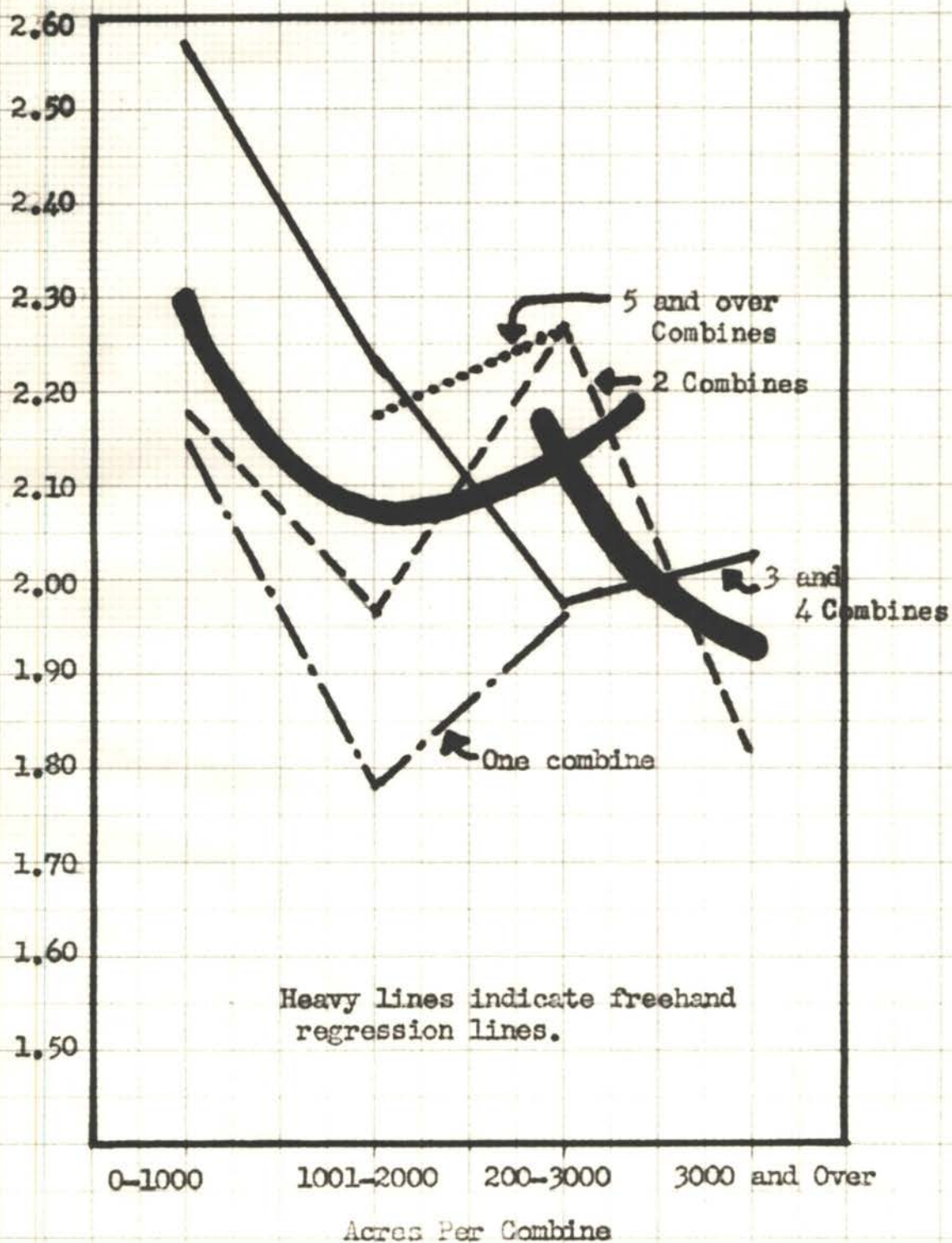
Some of the miscellaneous costs involved are hospitalization and doctor bills for crew members hurt while on the job, damages paid to a farmer for tearing down his fences and letting a second farmer's livestock into the wheat field, rent for the privilege of parking on a favorable corner of town, and other minor costs which cannot be allowed for in planning. The above mentioned costs were all paid during 1948 by one or more of the custom harvesters interviewed. In general, these miscellaneous costs are minor and need not be considered.

#### Effect of Acres Per Combine on Total Cost Per Acre:

In the past many farmers and farm managers have felt that the person who put his machinery over the greatest number of acres in any given time would have the least per acre cost. Figure 19 shows the effect of acres per combine on cost per acre. Apparently, the characteristic U shaped cost curve found in economic theory applies to combine costs. Wheat harvesting costs lend themselves to the Law of Diminishing Returns.

Several factors make the above statement true. Depreciation partially lends itself to the Law of Diminishing Returns. (See the section on Depreciation.) Depreciation costs per acre for those combines cutting 0-1000 acres per combine amounted to 24 cents per acre, for those combines cutting 1001-2000 acres per combine amounted to 17 cents, for those combines cutting 2001-3000 acres per combine amounted to 25 cents per acre, and for those combines cutting over 3,000 acres, 10 cents. Labor costs go up as the acres per combine are increased. The three and four combine operators cut more acres per combine than any other group and had the highest labor costs

Figure 19. Effect of Acres Per Combine on Total Cost Per Acre  
Custom Harvesters, 1948



per acre of any group of custom harvesters. Both the two machine group and the five machine and over group had lower labor costs and cut fewer acres per combine. There is a minimum amount of labor which must be on hand to cut wheat. For example, there must be a combine operator and a truck driver. If these two men cut only 20 acres per day, they have a very high labor cost. If they can increase their daily acreage to 40 acres, they will halve their labor cost. Then as they endeavor to increase their acreage, they must hire more labor. If they want to try to run longer hours per day, they must pay overtime to the labor which increases labor costs, or if they expect to run very long hours, they must hire a second crew. Many of the custom harvesters who intend to get large acreages do keep two crews on hand. They normally try to get in 14 or 16 hours per day when two crews are kept. When wheat is very ripe and the weather extremely dry, they sometimes run as high as 20 hours per day. When the machine consistently averages over some 12 hours per day, at least a partial second crew must be kept on hand.

The freehand regression lines in Figure 19 indicate that segments of two short-run curves may be present.

Three out of four cases show increased costs between 1001-2000 acres and 2001-3000 acres per combine. Less faith can be placed on the costs indicated by those cutting over 3,000 acres since only two size groups are represented and one decreases and the other increases as acreage is increased. Only three operators having two combines and cutting over 3,000 acres per combine were interviewed. The smallness of this sample, when compared with the three and four combine group which had seven reporting operators cutting over 3,000 acres, makes it a less reliable figure than the three and four combine figure.

Typically, an increase in acreage from 0-1000 acres to 1001-2000 acres per combine should decrease costs per acre from 20 to 40 cents per acre, depending on the skill of the individual operator. The next 1,000 acre increase will likely bring about increased costs of from nine to 20 cents per acre; however, the three and four combine operators, which as has been pointed out earlier represent the professionals in the business, do not seem to experience this cost increase. They experience a cost increase at a higher acreage.

Three of the four combine size groups experienced maximum physical efficiency between 1,001 and 3,000 acres, but this is not to say that greatest profits occur to those who harvest in this range. Maximum profit will be discussed in a later section.



PART V

PROBLEMS FACING CUSTOM HARVESTERS

STRATHMORE PARCHMENT  
100% RAG U.S.A.

## PROBLEMS FACING CUSTOM HARVESTERS

Many problems face custom harvesters who work their way north from Texas to North Dakota. Some of the problems are problems faced by other industries which in some respects are similar.

### Legal Problems:

Each individual state from Texas to North Dakota has its own set of regulations regarding behavior on and off the road. Three units cannot be pulled on the highways of Kansas. Oklahoma has no such regulation, but limits length to a maximum of 50 feet. Certain states require bond posting or liability insurance before operators are permitted to enter while others have no such regulations. Some operators have bought certain forms of insurance to find that it is not good in some states. Traffic regulations and rules of the road vary from state to state and the custom harvester who is away from home for his first time never quite knows what to expect.

By way of suggestion, it is felt that there should be some degree of similarity of laws and regulations among the various states. The disadvantages of trade barriers will not be discussed here and the report proceeds under the assumption that all forms of trade barriers are against the best interests of the public since these regulations and laws which prevent the free entry with a minimum of "Red Tape" are a form of trade barrier which damages the possibilities of a rapid and efficient harvest. Certain regulations are needed to protect the public interest, but freedom of movement must be maintained if custom harvesting is to work.

### Selecting the Combine:

Custom harvesters need combines constructed to the standards required for the severe use which they give a combine. Of the various makes of combines in the field at the present time, only one make seems to have given service without being rebuilt by many of the users. More combines were found that had been rebuilt after the first year's use than were found that had not been rebuilt.

Some requirements which men of experience report a good custom operator combine must have are listed below:

1. Big tires which roll through mud and roll over sand with a minimum power loss are needed. These big tires also cushion the machine and lessen vibration and jolt which are great enemies of combines.

2. Low construction so that the combine may be loaded on trucks without removing the exhaust pipes, air intake pipes, or grain elevator is needed. The grain tank should not be high. Certain makes on the market at present will not go under three Oklahoma underpasses.

3. Platforms should be removable with a minimum of labor and replacement should be a simple matter requiring a minimum of lifting. There can be no question but that the traffic problem presented by thousands of combines roaming the western Wheat Belt from May to September would be lessened if operators would remove their platforms and thereby reduce their width while traveling. If platform removal and replacement were less burdensome, more operators would remove them.

4. Solid construction throughout is required so that precious time will not be lost while the feeder housing is braced, the platform welded, or braces replaced.

5. Proper balance so that the load is balanced on both drive wheels so that one will not spin before the other. The rear guide wheels should be of sufficient size to prevent falling into every little hole; or, on rough ground, shaking the separator of the combine to pieces. Rear wheels should be far enough apart so that both will not fall in the same small depression in the ground.

6. The operator's platform should be arranged conveniently and located so all important working parts can be observed without getting out of position. The operator's platform should not be located so that the hot air blast from the engine is directed across him. Harvest fields are hot enough without directing the additional engine heat on the operator.

7. Bearings and shafts, and other working mechanisms should be constructed so that they will stand the hard use given them by custom harvesters.

8. The separator should have sufficient capacity to handle the width cut in the heaviest of wheat without doing poor work. Poor work ruins a custom harvester's reputation and damages him when he endeavors to get work the following year; therefore, he must be careful to select a machine with sufficient capacity.

9. The power unit in the combine should be large enough to do the job without heating in heavy wheat, or without being overloaded so that inefficiency occurs, or short life expected.

10. Variable speed mechanisms, whether they be mechanical or hydraulic drive, are very convenient, but are not a necessity. In uneven grain they save time and may save some grain, but any machine which is

equipped with two clutches, or separate controls for the thresher and mechanism, works satisfactorily. The man who intends to cut uneven wheat, or who intends to cut a very large acreage of anything should weigh the advantages in his own mind very carefully.

Every machine on the market has some advantages, and some disadvantages. The man considering a purchase should weigh all of the facts carefully and keep in mind what he intends to do with the machine purchased. Then he should fit the machine to the job, keeping in mind the total investment and what he gets for the investment.

#### Work Arrangement:

Another serious problem is the problem associated with getting work. It has been shown that moving costs are one of the largest single costs of custom harvesters. A large part of this moving cost goes toward finding work. In Oklahoma in 1948, there were areas of combine concentration where as high as 18 combines were found sitting idle during the heat of harvest while less than 30 miles distance, farmers were in search of combines. Chance had caused this lack of proper distribution. There is a pronounced tendency for custom harvesters to work their way from South to North along the main highways. Frequently, they do not work their way back from these highways and cutting which is 15 miles or over from the highway may go wanting.

Custom harvesters generally were satisfied with the United States Department of Agriculture program working through the Division of Extension Information which organized the famous "Harvest Brigades" that harvested the bumper war-time crops with a minimum of machinery. This service worked through the local county agent who acted as an information center for both harvester and farmer. With the end of the war, the need for this service was

no longer felt vital so it was discontinued. The work was taken over by the United States Employment Service, but custom harvesters were not satisfied with the job done.

A service similar to that provided by the Division of Extension Information is needed today. A tremendous service could be provided for farmers by the Extension Service if the above mentioned service were rendered. Harvest efficiency could be obtained which cannot be obtained without such a service. The logical institution to perform this service is the government; however, there are other possibilities.

The problem could be solved by organizing the custom harvesters and hiring a crew of men who would follow the harvest and gather vital information which could be given to the operators. One man as head of such an organization could employ three or four others who would travel back and forth across the Wheat Belt just ahead of harvest and take inventory of the combine needs. Then at information centers established along the main highways where the custom operators could reach conveniently, information concerning combine needs could be given out. These information centers would also serve as centers where farmers who had work to do could come and get in contact with a custom harvester. Pay for such service could be arranged on a fee basis plus a membership charge to custom operators.

The establishment of such a service should, for best results, be an independent organization free from obligation to farmer or custom harvester. If custom harvesting continues, and indications lead one to believe that at least some custom harvesting will always continue, then this need will be met in one way or another. If custom harvesters organize on their own to meet this need, there is a strong possibility that the organization will be used for other purposes such as minimum pricing and for general price raising

agitation. The organization may become "closed" so that custom harvesting will become monopolistic in tendency. It is in the better interest of the farmer that this need be met by some unbiased organization, preferably the government.

In England where farmers frequently do not own their own machinery and where agricultural engineers own machines which they hire out to farmers, this information service and regulatory power is controlled by a department of Food Ministry. The investigator's experience in England leads him to believe that an organization patterned after the English organization would be to the public's best interest.

#### Uncertainty Among Farmers:

The problem of uncertainty is a big problem facing the custom harvester. Many farmers feel that it would be cheaper for them to hire their wheat cut, but they fear being by-passed or delayed by custom harvesters; therefore, they continue to own their own combines. Also, custom operators frequently refuse to cut isolated fields, rough ground, terraced ground, irregularly shaped small fields, and poor wheat. These refusals damage the reputation of all custom harvesters, for farmers are prone to group all custom harvesters into one group rather than think of them as individuals. If custom harvesters are to remain a part of our economy, they must cut "all wheat" just as packers buy all livestock. Part of the trouble is the time-honored policy of cutting wheat at a price per acre. It would be just as ridiculous to buy cattle at a price per head. Wheat is normally cut at a price per acre unless there is something drastically out of the ordinary wrong with the field which may permit an increased price. Each field of wheat presents an individual problem and some form of pricing should be worked

out which will give a degree of justice to each field. Perhaps a series of policies could be worked out which would work. A minimum charge per acre might be used with a bonus per bushel for over a minimum yield with adjustments made by higgling for rough ground, or other hard to cut features.



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PART VI

MAXIMUM PROFIT

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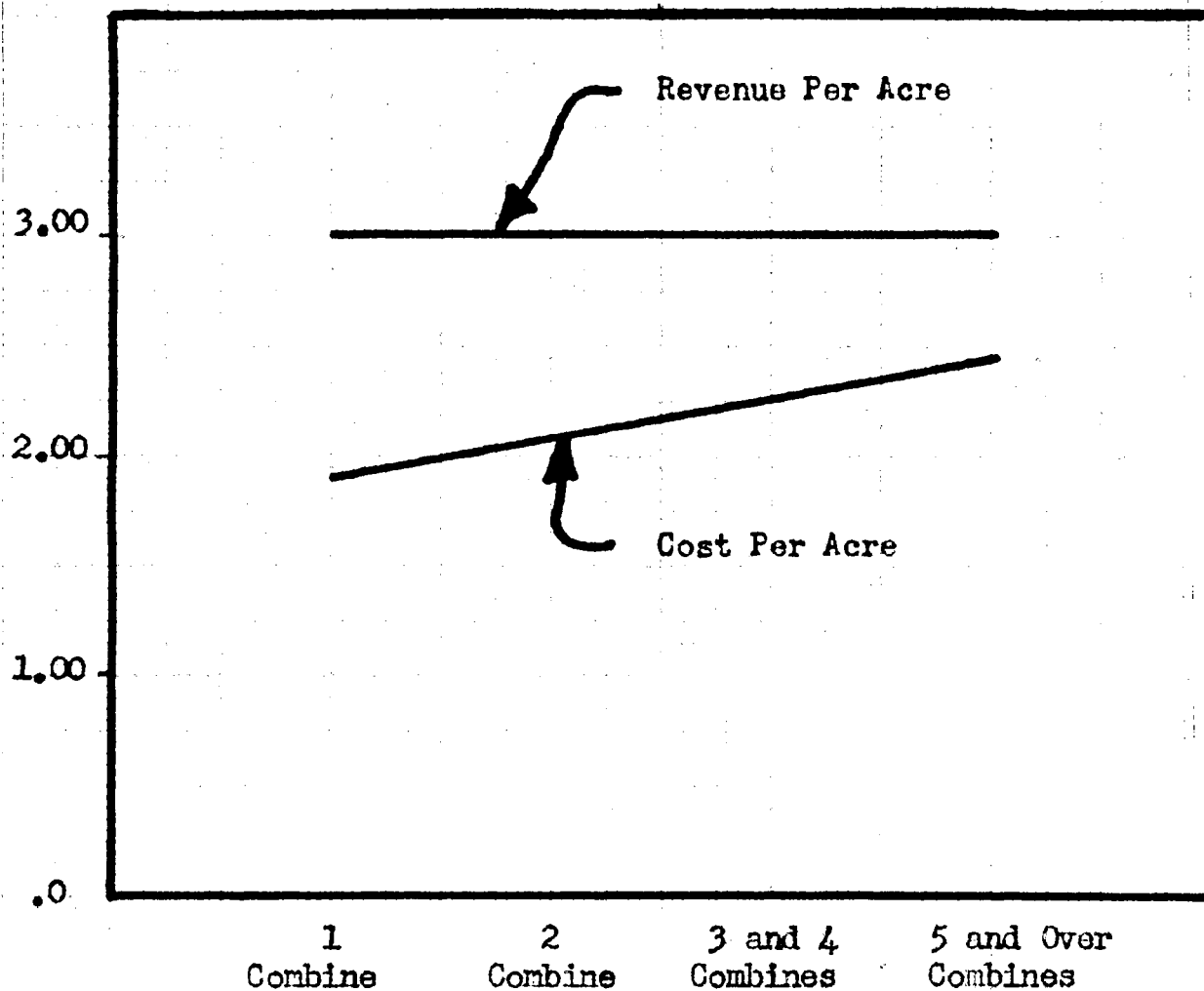
**Maximum Profit:**

In spite of the fact that total costs per acre begin to creep upward after approximately 1,500 acres have been cut per machine in a single year, greatest profit for the operator occurs where the maximum number of acres per machine are cut. Figure 20 shows how total costs per acre start to rise after the 1001-2000 acreage has been passed. In the one combine group where the increase in costs is greatest after the minimum cost has been reached a combine operator cutting 500 acres at \$3.00 per acre would make \$425.00 net. If he increased his acreage to 1,500 he would make \$1,815.00, and if he increased his acreage to 2,500 acres, he would make \$2,600.00. (Costs based on Appendix Table 1.) The thousand acre increase between 500 acres and 1,500 acres netted the operator \$1,390.00. The second thousand added between 1,500 and 2,500 netted the operator \$785.00; therefore, the marginal revenue is decreasing, and logically there would occur a point where an additional increase would result in no additional net income. This point would occur where the marginal cost equals \$3.00, or marginal revenue. The findings in this study do not reach far enough to locate where this point of maximum profit would occur, but the generalization might be drawn from what has been found that the acreage per combine where maximum profit occurs is above the acreage it would be practical to harvest with a single combine due to physical conditions. Weather, moving, and the like, are the limiting factors rather than diminishing returns.

The above paragraph indicates that whatever the size unit, the acreage per combine should be great if maximum profit is to result. Figure 20 shows the cost per acre and the revenue per acre for various size custom operators. The cost is increasing, and it is logical to project the cost line even farther out to where average cost would equal revenue and no profit

FIGURE 20. REVENUE AND COST PER ACRE  
FOR CUSTOM HARVESTERS, 1948

Dollars



Adapted from Figure 9.

occur. Where this point would occur must be estimated for this study does not contain sufficient information to locate it.

Table 6 shows the net profit per outfit based on the average acreage cut. It is felt that this table is realistic since it is based on actual average acreages cut by the various size units. Figure 8 indicates that one of the diseconomies of the very large units is a decrease in acres per combine cut, and Table 6 includes this diseconomy. Profit mounts steadily as size of unit is increased from one to four machines; however, the addition of the fifth machine decreased net revenue. Increased costs per acre and fewer acres per combine account for the decrease. This is not to say that five combines always make less than four, but five combines cutting a decreased acreage as they did in 1948 make less. In order to continue to increase profit, the operator who is growing must keep acreage per combine high.

Again, there are indications that a point of maximum profit may have been reached, but his study does not go far enough to offer concrete evidence to the fact. Marginal net revenue between one and two combines was \$1,162.00 between two and three combines was \$950.00, between three and four was \$7,418.00, between four and five \$4,125.00, and between five and six combines was \$1,846.00. Marginal net revenue decreased after the addition of the fourth machine; therefore, this trend may decrease it to zero somewhere. If the conditions of reduced acreages per combine for the larger operators as found this year are normal, then maximum profit is reached at four combines.

Table 6. Balance Sheet of Custom Harvesting

	Number of Combines 1/					
	1 Combine	2 Combines	3 Combines	4 Combines	5 Combines	6 Combines
Number of Operators in Each Group (Number)	20	23	14	8	3	2
Average Season in Days (Days)	59	84	88	111	120	105
Average Number of Cutting Days (Days)	46	64	65	83	90	85
Average Intended Acreage Per Combine (Acres)	1,800	1,850	1,745	3,465	2,020	2,083
Acres Per Cutting Day Expected (Acres)	46	93	131	193	233	270
Average Acres Per Day Expected Per Combine (Acres)	46	42	44	48	47	45
Hired Men Per Combine (Number)	0.75	1.48	1.86	2.13	2.27	2.33
Average Total Revenue (Dollars) <sup>2/</sup>	5,400.00	11,100.00	15,705.00	41,580.00	30,300.00	37,494.00
Average Total Cost (Dollars) <sup>2/</sup>	3,010.00	7,548.00	11,203.00	29,660.00	22,523.00	27,871.00
Total Profit (Dollars)	2,390.00	3,552.00	4,502.00	11,920.00	7,777.00	9,623.00

1/ Only one unit operated over six combines and it was eliminated, since one unit does not represent a fair sample.

2/ Revenue and cost based on the average acreage cut per combine in each size group times the number of combines per operator.

**PART VII****FARMER REACTION TO CUSTOM HARVESTING**

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## FARMER REACTION TO CUSTOM HARVESTING

Seventy farmers' reactions to custom combining are summarized in Table 7. These farmers are divided into six groups according to acreage in wheat and combine ownership. In the local areas where these farmers were interviewed, from 97 to 100 percent of the wheat is harvested with combines. Oats vary greatly, but the range is from 43 to 96 percent. Generally, 70 to 80 percent of the oats in western Oklahoma are combined. The barley acreage varies widely, but indications are that somewhere between 50 and 99 percent normally would be harvested with combines.

Farmers who own their own combines report that in their communities, between 60 and 79 percent of the farmers harvest their own crop, the larger farmers consistently reporting a higher percentage cut their own crop. Those not owning combines report that a lesser amount cut their own wheat in their communities. This is significant in that it indicates the presence of local trends. In certain areas all the farmers own their combines, and little custom work is done; however, other areas will get started hiring their wheat cut, and the trend will continue. Examples of these areas are:

1. The area west of Guthrie toward Cashion where the farms are small and the land rolling, terraced, and rough, is an area where little custom harvesting is done. Fields are small. In this area most all the farmers own their own combines. Little custom work is done, and what custom work is done is of a local nature.

2. The area between Cordell and Gotebo where the land is rolling and fields small is another area of little custom cutting. The ground is sandy. Custom harvesters generally avoid this area; therefore, the farmers own their own combines and little custom work is done.

Table 7. Farmer Reaction 1/

Wheat Acreage:	: Farmers Who Own Com-			: Farmers Who Do		
	: bines and Cut Own			: Not Own		
	: Wheat			: Combines		
	: 0-	: 101-	: 301 and	: 0-	: 101-	: 301 and
	: 100	: 300	: Over	: 100	: 300	: Over
Number in Each Group (Number)	13	16	4	17	16	4
Average Farm Size (Acres)	185	505	740	171	294	530
Acres in Cropland (Acres)	116	209	609	130	240	410
Average Wheat Acreage (Acres)	69	194	541	64	154	379
Percentage of Crop Hired Har- vested (Percent)	34	19	39	98	81	2/
Acres Harvested for Others (Acres)	175	325	95	173	100	—
Percentage of Total Wheat Combined (Percent)	99	97	100	99	100	100
Percentage of Total Oats Combined (Percent)	43	96	75	71	79	54
Percentage of Total Barley Combined (Percent)	85	50	25	99	87	75
Percentage of Crop Cut By Farmer (Percent)	60	68	79	42	29	54
Percentage Cut By Local Custom Harvester (Percent)	17	9	5	19	13	12
Percentage Cut By Non-Local Harvester (Percent)	23	32	16	39	59	34
Percentage Reporting Non-Local Men Did <u>Poor</u> Work	33	25	0	36	8	0
Percentage Reporting Local Harvesters Did <u>Poor</u> Work (Percent)	0	0	0	15	0	0
Percentage Reporting Non-Local Harvesters Did <u>Not</u> Clean Up Area (Percent)	29	40	50	31	13	0
Percentage Reporting Non-Local Harvesters Moved Out Before Harvest Peak (Percent)	22	8	0	21	13	33
Percentage Reporting Non-Local Harvesters Do <u>Not</u> Cut All Grain (Percent)	11	36	67	15	6	33
Percentage Reporting Non-Local Harvesters Refused Isolated Field (Percent)	0	17	67	33	13	0
Percentage Reporting Fields Delayed Due to Non-Local Harvesters (Percent)	25	25	25	15	13	0
Percentage Reporting Insuffi- cient Local Combines Left to Wind Up Harvest (Percent)	10	7	0	0	6	0

(Continued)



Table 7. Farmer Reaction (Continued)

	Farmer Who Own Combines and Cut Own Wheat			Farmers Who Do Not Own Combines		
	0-100	101-300	301 and Over	0-100	101-300	301 and Over
Normal Price for Cutting Wheat (Dollars)	3.00	3.00	3.00	3.00	3.00	3.00
Percentage Reporting Must Hire Trucks to Get Combine (Percent)	0	29	25	18	0	0
Normal Price for Hauling for Five Miles (Cents)	.05	.05	.05	.05	.05	.05
Cost Per Mile Over Five Miles (Cents)	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
Percentage Reporting They Will Continue To Hire Wheat Cut (Percent)	8	12	25	64	58	25
Percentage Hiring Now or Have Hired Wheat Cut (Percent)	54	91	75	100	100	100
Modal or Median Fair Price (Dollars)	3.00	3.00	1.50	3.00	3.00	2.50
Percentage Having Once Owned Combine (Percent)	100	100	100	43	21	0

1/ Summarized from Schedule Type B (See Appendix B).

2/ Two of four not reporting on this point; therefore, this figure is left out.

3. The area around Frederick is noted for the degree of custom harvesting done there. The land is smooth and fields relatively large. Custom harvesters concentrate in this area because wheat ripens early in the season.

4. The area around Turpin is level and fields are large. Two highways cross there and custom harvesters tend to congregate there. Much of that area is cut by transient harvesters.

A characteristic trend develops when the percentages reporting that non-local harvesters did poor work is analyzed. The farmers with less than 100 acres of wheat, whether they owned combines or not, reported that 33 percent or over of the non-local custom harvesters did poor work. The middle size farmers reported that fewer non-local men did poor work, and the large farmers all reported that non-local harvesters did good work. What is the reasoning behind this trend?

Custom harvesters are no different than any other human beings and for years it has been known that in a buyers' market, the larger buyer can get a better deal. In custom harvesting, the larger farmer gets a better deal. The larger farmer logically has larger fields, and he has sufficient wheat to make his job of interest to the harvester. Contrast the difference, from the point of view of the custom harvester, between the farmer with 30 acres and the farmer with 500 acres of wheat. The 500 acre job means a gross income of \$1,500.00 for one business transaction whereas the 30 acre job means \$90.00. In many cases, the task of unloading, moving from field to field, and locating the work would be exactly the same. For these reasons, the custom harvester is more interested in the big farmer. He will try to do good work. In addition, the large farmer can fire a harvester out of his field and get someone else to cut it because of the acres involved, but the fellow

with 30 acres cannot do this. If he tries to react the same as the large farmer, he in all probability will find his wheat uncut and all the combines gone two weeks after harvest.

Generally, farmers were satisfied with the job done by local custom harvesters. Only one size group stated any dissatisfaction with local custom operators.

All groups except one stated that non-local operators did not clean up the area. The large farmers who did not own combines reported that in their areas non-local custom harvesters did clean up the whole area. The most seriously affected group was the large farmers who owned combines, 50 percent of which reported that non-local harvesters did not clean up the area. The farmers in the small farmer group who did not own combines showed considerable dissatisfaction, since 33 percent stated that non-local harvesters did not clean up the area.

Dissatisfaction ranging from none to 33 percent was shown when farmers reported that non-local harvesters moved out before the peak of harvest was reached. Also, a degree of dissatisfaction is indicated since no group reported that non-local harvesters cut all grain for those they cut for. The range was from 6 percent for the medium size non-combine farmers to the maximum of 36 percent for the medium size who had combines.

Non-local harvesters frequently refuse to cut an isolated field, therefore, breeding dissatisfaction among farmers. Sixty-seven percent of the large wheat farmers who owned combines reported that non-local harvesters refused to cut isolated fields. Thirty-three percent of the small wheat farmers who do not have combines reported that isolated fields were refused. The only group completely satisfied with non-local harvesters on this point were the large non-combine wheat farmers.

Every group except the large non-combine farmers voiced some dissatisfaction because fields had been delayed due to non-local harvesters. Twenty-five percent of the combine owners voiced dissatisfaction, and the non-combine farmers voiced some, but less disapproval.

A serious problem was faced by the small farmers in the combine ownership group, 10 percent of whom believed that there were insufficient local combines left in the areas to complete harvest satisfactorily. One-half of the groups report sufficient combines.

The normal price charged for harvesting throughout Oklahoma during 1948 was \$3.00 and some 20 percent (estimated) indicated that trucks must be taken in order to get combines. The normal price for hauling was 5 cents for the first five miles or up to that distance plus one-half cent per mile for each additional mile per bushel. here

The modal "fair price" for the various groups was \$3.00 which was the going price in Oklahoma in 1948. It is evident that dissatisfaction is not coming from price discrimination, but rather from service rendered.

Fifty-four percent of the farmers who farm less than 100 acres in wheat have hired wheat cut at one time or another, and only 8 percent plan to continue to hire wheat cut. Ninety-one percent of the farmers with 100-300 acres of wheat per farm have hired wheat cut sometime in the past and only 12 percent of them aim to continue hiring some wheat cut. Seventy-five percent of the large wheat farmers who own combines have hired wheat cut in the past, and only 25 percent of them aim to continue hiring any wheat cut. These trends are important because they indicate a decrease in acreages which may be custom cut in the future, unless there is a change in custom cutting attitude and policy. These farmers reported that they have hired harvested from 19

percent to 39 percent of their crops in the past and this year. Even 19 percent of the crop of those who own combines is a sizable acreage, and this loss will hurt the itinerant custom business.

All of those farmers who do not own combines have by necessity hired wheat cut, but only 64 percent of the small farmers, 58 percent of the medium size wheat farmers, and 25 percent of those with over 300 acres of wheat intend to continue to hire wheat cut. Again, a loss for custom cutting is foreseen.

Although there seemed to be little dissatisfaction among farmers over price in 1948, 80 percent of those farmers interviewed by the investigator who cut their own wheat reported that they felt it was cheaper to own their own combines and cut their own wheat.

Only 60 percent of the farmers interviewed by the investigator who hire their wheat cut at present intend to continue hiring wheat cut in the future and 58 percent intend to buy combines when they get cheaper and more plentiful.

The reasons listed by farmers for cutting their own wheat were: Cheaper in cost, risk involved, independence, harvest for others, and better harvest. Ninety-two percent of the farmers owning their own combines or desiring to purchase one listed cost as a reason. Sixty-seven percent listed risk and better job of harvesting as a reason. Independence was listed as an important reason 50 percent of the time. Harvesting for others and other minor reasons were listed, but did not receive prominent attention among farmers.

The conclusions to be drawn are that there will always be some wheat to cut in Oklahoma, but unless the farmers for whom custom harvesters

must cut change their thinking about custom cutting, a drop in the acreage custom harvested may be expected. If custom harvesters drop their price to where only a normal profit is obtained and improve the service rendered so that some of the worry encountered by farmers is eliminated, custom operation may remain at present levels or even grow some.

PART VIII  
SUMMARY AND CONCLUSIONS

## SUMMARY AND CONCLUSIONS

Custom harvesting has taken an important place in the economy of western Oklahoma. Modern machinery and transportation facilities make transient combine operation possible. The war was the initial boosting force which started an extensive custom harvesting program and the harvesters have remained since the war.

The organization of custom harvesters varies widely, but typically the owner starts as a one combine outfit and grows into a larger unit, normally adding one combine each year for at least two years. The modal size is a two combine outfit.

The equipment consists of combines, trucks, and numerous other equipment which may include automobiles, house trailers, maintenance trailers, mobile kitchens, and various tools.

They start in southwest Oklahoma and move northward as harvest progresses. A heavy concentration of machines is usually found in southwest Oklahoma and these machines fan out as the Wheat Belt broadens when harvest moves northward.

Custom harvesters frequently arrange for their work ahead of harvest and follow a planned route from South to North, but others make no definite arrangements.

Combines are typically operator owned; however, numerous partnerships are found. Few operators are full-time custom harvesters and the predominant second occupation is farming. Those who farm are typically large farmers, the average size farm being some 650 acres.

Custom harvesters can cut wheat cheaper than farmers can because of the increased acreage per combine. As additional combines are added, the



industry becomes one of increasing costs; however, the average cost for the largest group is still lower than the average farmer cost.

Acreage per combine plays an important role in determining costs. The greatest physical efficiency is obtained when a combine harvests between 1000-2000 acres per year; however, maximum profit occurs when over 2,000 acres per combine are cut.

The costs per acre for the one combine custom harvesters are the least of any size group. The average total cost per acre for the one combine custom harvester was found to be \$1.95.

This study does not go far enough to determine the point of maximum profit; however, it does indicate that such a point occurs. In spite of increased costs per acre, maximum profit occurred to the four combine group if they cut the acreage intended. Reason for this point was a combination of increased costs for the larger units and decreased acreages per combine for the larger units.

Many problems face the custom harvester, foremost among them are the problems of selecting a combine suited to the job he plans to accomplish, and the problem of finding work.

## APPENDIX A

Table 1. Costs for One Combine Custom Harvester  
(Per Season)

Intended Acreage: Grouping	:Intended: Code:	Total : Acreage:	: Combine : Investment:	: : Insurance:	: : Repairs:	: : Gasoline:	: : Oil:	: : Grease:	: Labor Family 1/:	: : Hired 2/:	: : Total:	: Moving Costs Gross Acres 3/:	: Deprecia-: tion:	: Interest on: Investment:	: Tractor Fixed Costs:	: Total Cost Per Acre
(Acres)	(Acres)	(Dollars)	(Dollars)	(Dollars)	(Gallons)	(Quarts)	(Pounds)	(Dollars)	(Dollars)	(Dollars)	(Dollars)	(Acres)	(Dollars)	(Dollars)	(Dollars)	(Dollars)
0-1000	1	480	5,900.00	160.00	0.00	480	24	36	144.00	144.00	288.00	144.0	2,600	3,600.00	70.08	
Per Combine	2	480	6,100.00	160.00	0.00	480	24	36	144.00	144.00	288.00	144.0	Acres	3,600.00	70.08	
	51	470	5,725.00	40.00	0.00	353	12	24	423.00	0.00	423.00	70.5	at	3,125.00	68.62	
	52	720	3,200.00	0.00	100.00	526	18	60	183.60	242.64	426.24	7.2	24.4¢	1,200.00	112.32	
	56	450	3,700.00	0.00	0.00	300	15	30	180.00	135.00	315.00	4.5		1,300.00	87.75	2.15
Totals		2,600	24,625.00	360.00	100.00	2,139	93	186			1,740.24	370.2	634.40	12,825.00	408.85	2.15
						at 25¢	at 25¢	at 20.6¢				at \$3.00		at 5%		
						\$ 534.75	\$ 23.25	\$ 38.32				\$1,110.60		641.25		
1001-2000	7	1,200	5,500.00	0.00	0.00	800	40	60	240.00	444.00	684.00	300.00	10,600	3,000.00	117.60	
Per Combine	11	2,000	5,500.00	85.00	0.00	1,600	40	80	480.00	480.00	960.00	500.00	Acres	5,500.00	0.00	
	17	2,000	12,000.00	75.00	0.00	2,200	50	100	1,200.00	0.00	1,200.00	500.00	at	6,000.00	0.00	
	30	1,600	6,800.00	110.00	150.00	1,600	80	160	960.00	0.00	960.00	400.00	16.9¢	3,300.00	187.20	
	38	1,800	6,300.00	100.00	85.00	1,800	51	154	1,224.00	0.00	1,224.00	180.00		4,000.00	0.00	
	63	2,000	11,000.00	95.00	0.00	1,334	30	90	369.33	738.67	1,108.00	500.00		6,000.00	0.00	1.79
Totals		10,600	47,100.00	465.00	235.00	9,334	291	644			6,138.00	2,380.00	1,791.40	27,800.00	304.80	1.79
						at 25¢	at 25¢	at 20.6¢						at 5%		
						\$2,333.50	\$72.75	\$132.66				\$7,140.00		1,390.00		
2001 and Over	12	2,100	5,200.00	45.00	50.00	2,940	50	231	714.00	714.00	1,428.00	420.00	22,790	3,000.00	210.00	
Per Combine	14	2,800	9,500.00	0.00	25.00	1,680	93	93	1,120.00	0.00	1,200.00	700.00	Acres	6,000.00	0.00	
	20	2,350	5,850.00	80.00	0.00	2,938	118	294	1,410.00	0.00	1,410.00	587.50	at	3,500.00	206.80	
	23	2,400	9,100.00	50.00	0.00	1,512	60	120	720.00	600.00	1,320.00	600.00	20.4¢	6,300.00	0.00	
	26	2,820	5,600.00	100.00	0.00	2,820	60	113	719.10	902.40	1,621.50	705.00		3,600.00	0.00	
	39	2,700	7,000.00	100.00	0.00	2,403	60	180	718.20	1,800.00	2,518.20	675.00		4,500.00	0.00	
	47	2,320	8,800.00	150.00	0.00	2,320	58	174	696.00	1,740.00	2,436.00	348.00		5,000.00	0.00	
	49	3,000	6,400.00	75.00	0.00	2,400	120	240	720.00	720.00	1,440.00	750.00		3,900.00	210.00	
	70	2,300	5,500.00	120.00	250.00	1,610	46	138	552.00	1,104.00	1,656.00	575.00		3,000.00	0.00	1.96
Totals		22,790	2,950.00	720.00	325.00	20,623	665	1,583			14,949.70	5,360.50	4,649.16	38,800.00	426.80	1.96
						at 25¢	at 25¢	at 20.6¢						at 5%		
						\$5,155.75	\$166.25	\$326.10				\$16,081.50		1,940.00		
Total for All One Combine Harvesters		35,990	134,675.00	1,545.00	660.00	8,024.00	262.25	497.08			22,825.94	24,332.10	7,074.96	3,971.25	1,140.45	
Cost Per Acre (Cents)				4.3	1.8	22.3	0.7	1.4			63.4	67.6	19.7	11.0	3.1	1.95

1/ Family labor figured at \$1.00 per hour. (One dollar per hour is the modal rate for one combine units.)

2/ Two dollars and fifty cents per day was allowed for board for those boarded by the employer.

3/ See Depreciation, Cost of Harvesting section.

Table 2. Costs for Two Combine Custom Harvester  
(Per Season)

Intended Acreage: Grouping	:Intended: Code:	Total : Acreage:	: Combine : Investment:	: : Insurance:	: : Repairs:	: : Gasoline:	: : Oil:	: : Grease:	: Labor : Family 1/:	: : Hired 2/:	: : Total:	: Moving Costs : Gross Acres 3/:	: Deprecia-: : tion :	: Interest on: : Investment:	: Tractor : Fixed Costs:	: Total Cost : Per Acre
(Acres)	(Acres)	(Dollars)	(Dollars)	(Dollars)	(Gallons)	(Quarts)	(Pounds)	(Dollars)	(Dollars)	(Dollars)	(Dollars)	(Acres)	(Dollars)	(Dollars)	(Dollars)	(Dollars)
0-2000	5	460	3,275.00	50.00	237.00	920	61	92	184.00	552.00	736.00	4.6	9,403	2,175.00	179.40	
Per Combine	15	1,450	13,500.00	180.00	0.00	1,450	42	123	247.95	652.50	900.45	241.0	Acres	8,000.00	0.00	
	18	1,763	1,200.00	180.00	100.00	1,428	50	74	142.27	678.75	821.02	88.2	at	7,000.00	0.00	
	21	1,300	9,000.00	0.00	100.00	1,300	35	69	624.00	0.00	624.00	130.0	24.4¢	5,000.00	101.40	
	42	1,430	12,000.00	385.00	0.00	1,430	36	107	643.50	561.99	1,205.49	107.2		6,000.00	125.84	
	55	2,000	20,800.00	340.00	700.00	1,480	40	120	480.00	900.00	1,380.00	500.0		15,800.00	0.00	
	65	1,000	7,600.00	300.00	150.00	625	50	75	150.00	473.70	623.70	166.7		4,000.00	292.00	2.18
Totals	9,403	78,175.00	1,435.00	1,287.00	8,633	314	660				6,290.66	1,238.4	2,294.33	47,975.00	698.64	2.18
					at 25¢	at 25¢	at 20.6¢					at \$3.00		at 5%		
					\$2,158.25	\$78.50	\$137.20					\$3,715.2		2,398.75		
2001-4000	43	4,000	23,000.00	450.00	0.00	2,800	80	240	960.00	960.00	1,920.00	1,200.00	29,520	17,000.00	0.00	
Per Combine	44	2,320	21,800.00	245.00	300.00	2,552	67	264	348.00	1,450.00	1,798.00	580.00	Acres	13,800.00	0.00	
	48	3,000	19,200.00	200.00	0.00	2,610	75	375	450.00	1,680.00	2,130.00	750.00	at	12,000.00	0.00	
	57	4,000	14,300.00	280.00	75.00	2,668	68	200	800.00	666.80	1,466.80	1,000.00	16.9¢	9,300.00	0.00	
	59	4,000	16,100.00	300.00	0.00	3,000	80	240	960.00	960.00	1,920.00	1,000.00		7,000.00	188.00	
	60	2,320	9,400.00	290.00	60.00	2,227	70	186	278.40	696.00	974.40	278.4		6,900.00	109.04	
	64	4,000	11,900.00	370.00	400.00	3,320	68	200	400.00	2,000.00	2,400.00	1,000.0		7,400.00	0.00	
	68	2,600	11,500.00	295.00	350.00	2,184	78	156	1,248.00	0.00	1,248.00	750.0		6,500.00	188.00	
	69	3,280	18,700.00	325.00	275.00	2,919	72	289	875.76	1,312.00	2,187.76	459.2		12,000.00	0.00	1.97
Totals	29,520	145,900.00	2,755.00	1,460.00	24,280	658	2,150				16,044.96	7,017.6	4,988.88	91,900.00	485.04	1.97
					at 25¢	at 25¢	at 20.6¢							at 5%		
					\$6,070.00	\$164.50	442.90					21,052.80		4,595.00		
4001 and Over	8	5,000	15,500.00	304.00	100.00	4,000	100	500	600.00	3,200.00	3,800.00	1,250.00	46,200	9,500.00	0.00	
	10	6,000	12,400.00	500.00	175.00	6,600	150	450	900.00	4,872.00	5,772.00	1,500.00	Acres	11,000.00	0.00	
	16	7,200	9,000.00	350.00	300.00	7,200	180	540	1,080.00	5,400.00	6,480.00	1,800.00	at	6,000.00	0.00	
	19	9,000	20,100.00	350.00	400.00	9,000	198	396	2,403.00	1,998.00	4,401.00	2,250.00	20.4¢	15,100.00	0.00	
	25	4,800	20,500.00	350.00	0.00	4,800	115	451	1,339.20	2,092.80	3,432.00	1,200.00		16,500.00	0.00	
	28	6,000	14,150.00	360.00	150.00	5,400	120	300	720.00	2,160.00	2,880.00	2,000.00		9,150.00	210.00	
	61	8,200	22,600.00	340.00	300.00	4,920	107	547	656.00	3,936.00	4,592.00	1,640.00		13,000.00	0.00	2.06
Totals	46,200	104,250.00	2,554.00	1,425.00	41,920	970	3,184				31,357.00	11,640.00	9,424.80	80,250.00	210.00	2.06
					at 25¢	at 25¢	at 20.6¢							at 5%		
					\$10,480.00	\$242.50	\$655.90					34,920.00		4,012.50		
Total for All Two Combine Harvesters	85,123		6,744.00	4,172.00	18,702.25	485.50	1,236.00				53,692.62	59,688.00	16,708.01	11,006.25	1,393.68	
Cost Per Acre (Cents)			7.9	4.9	22.0	0.6	1.4				63.0	70.1	19.6	12.9	1.6	2.04

1/ Family labor figured at \$1.00 per hour. (One dollar per hour is the modal rate for two combine units.)

2/ Two dollars and fifty cents per day was allowed for board for those boarded by the employer.

3/ See Depreciation, Cost of Harvesting section.

Table 3. Costs for Three and Four Combine Custom Harvesters  
(Per Season)

Intended Acreage: Grouping	:Intended: Code:	Total : Acreage:	: Combine : Investment:	: Insurance:	: Repairs:	: Gasoline:	: Oil:	: Grease:	: Family 1/:	: Hired 2/:	: Total:	:Moving Costs: Gross Acres 3/:	:Deprecia- tion:	:Interest on: Investment:	:Tractor : Fixed Costs:	:Total Cost Per Acre	
(Acres)	(Acres)	(Dollars)	(Dollars)	(Dollars)	(Gallons)	(Quarts)	(Pounds)	(Dollars)	(Dollars)	(Dollars)	(Dollars)	(Acres)	(Dollars)	(Dollars)	(Dollars)	(Dollars)	
0-1000 Per Combine	66 67	2,000 2,500	12,000.00 18,900.00	750.00 250.00	200.00 400.00	2,000 1,944	100 100	150 250	1,600.00 400.00	1,600.00 2,000.00	1,600.00 2,400.00	400.00 375.00	4,500 Acres	6,000.00 10,800.00	292.00 292.50	2.57	
Totals	4,500	30,900.00	1,000.00	600.00	3,944	200	400				4,000.00	7,750.00 at \$3.00	24.4¢ 1,098.00	16,800.00 at 5%	584.50		
					at 25¢ \$ 986.00	at 25¢ \$50.00	at 20.6¢ \$ 82.40										
1001-2000 Per Combine	71 54 3 4 6 22 24 37 41 45	6,500 3,140 8,000 6,000 3,200 8,000 4,000 5,200 4,800 3,500	16,500.00 26,000.00 22,000.00 33,000.00 16,100.00 19,310.00 63,550.00 25,500.00 17,000.00 22,800.00	550.00 450.00 468.00 700.00 250.00 450.00 450.00 550.00 450.00 435.00	250.00 1,500.00 736.00 100.00 75.00 300.00 100.00 65.00 150.00 50.00	5,200 3,140 5,920 5,400 4,032 5,760 4,000 5,200 3,840 3,063	130 63 176 112 213 160 88 142 160 117	390 188 640 600 192 640 178 331 480 204	1,560.00 0.00 768.00 1,350.00 512.00 960.00 710.80 1,133.60 384.00 700.00	7,500.00 1,632.80 4,000.00 2,340.00 3,584.00 2,880.00 3,520.00 4,160.00 2,880.00 1,680.00	9,060.00 1,632.80 4,768.00 3,690.00 4,096.00 3,840.00 4,230.80 5,293.60 3,064.00 2,380.00	1,950.00 785.00 1,200.00 1,800.00 320.00 2,000.00 800.00 1,300.00 960.00 875.00	52,340 Acres at 16.9¢	10,500.00 12,500.00 8,500.00 19,500.00 10,400.00 11,110.00 53,550.00 13,500.00 11,000.00 17,000.00	0.00 0.00 450.00 0.00 399.05 0.00 0.00 219.02 297.60 116.60	2.24	
Totals	52,340	261,760.00	4,753.00	3,326.00	45,555	1,362	3,843				42,055.20	11,990.00	8,845.46	167,560.00 at 5%	1,482.27		
					at 25¢ \$11,388.75	at 25¢ 340.50	at 20.6¢ \$791.66					35,970.00		8,378.00			
2001 and Over Per Combine	13 27 29 31 32 33 34 35 40 50	12,000 6,750 7,200 20,000 6,750 14,400 14,000 16,000 20,000 16,000	29,000.00 26,000.00 21,300.00 75,000.00 15,000.00 26,300.00 41,000.00 31,000.00 23,600.00 29,400.00	450.00 400.00 350.00 1,200.00 350.00 650.00 600.00 1,200.00 450.00 475.00	75.00 100.00 250.00 200.00 350.00 125.00 100.00 1,600.00 175.00 100.00	10,500 5,999 7,200 20,000 5,999 12,149 14,000 16,000 13,000 9,600	300 150 180 444 150 450 280 400 550 320	400 300 540 888 750 1,080 840 2,000 800 960	3,600.00 594.00 720.00 2,660.00 599.40 2,160.00 840.00 2,400.00 2,400.00 960.00	6,000.00 3,375.00 4,320.00 9,800.00 3,597.75 11,880.00 840.00 13,600.00 9,600.00 8,400.00	9,600.00 3,969.00 5,040.00 12,460.00 4,197.15 14,040.00 11,760.00 16,000.00 12,000.00 10,000.00	3,000.00 1,687.50 1,800.00 2,400.00 1,012.50 3,600.00 5,600.00 5,333.30 5,000.00 4,000.00	133,100 Acres at 20.4¢	12,000.00 14,500.00 11,400.00 57,500.00 9,000.00 13,800.00 29,000.00 23,000.00 9,000.00 21,900.00	0.00 0.00 0.00 0.00 0.00 422.40 0.00 0.00 933.38 0.00	2.09	
Totals	133,100	355,600.00	6,125.00	3,075.00	114,447	3,224	8,558				99,066.15	33,433.30	27,152.40	201,100.00 at 5%	1,355.78		
					at 25¢ \$ 28,611.75	at 25¢ \$ 806.00	at 20.6¢ \$1,762.95					100,299.90		10,055.00			
Total for All Three and Four Combine Harvesters	189,940		11,878.00	7,001.00	40,986.50	1,196.50	2,637.01				145,121.35	138,594.90	37,095.86	19,273.00	3,422.55		
Cost Per Acre (Cents)			6.3	3.7	21.6	0.6	1.4				76.4	73.0	19.5	10.1	1.8	2.14	

1/ Family labor figured at \$1.00 per hour. (One dollar per hour is the modal rate for three and four combine units.)

2/ Two dollars and fifty cents per day was allowed for board for those boarded by the employer.

3/ See Depreciation, Cost of Harvesting section.

Table 4. Total Costs for Five Machines and Over Combine Custom Harvesters  
(Per Season)

Intended Acreage: Grouping	:Intended: Code:	Total Acreage:	: Total Investment:	: Combine: Insurance:	: Repairs:	: Gasoline: (Gal- lons)	: Oil (Quarts)	: Grease (Pounds)	: Labor Family 1/ Hired 2/ Total:	: Moving Costs Gross Acres 3/:	: Deprecia- tion:	: Interest on: Investment:	: Tractor Fixed Costs:	: Total Cost Per Acre
(Acres)	(Acres)	(Dollars)	(Dollars)	(Dollars)	(Dollars)	(Dollars)	(Dollars)	(Dollars)	(Dollars)	(Dollars)	(Dollars)	(Dollars)	(Dollars)	(Dollars)
1000-2000	58	10,000	31,100.00	500.00	575.00	8,600	280	680	960.00	4,300.00	5,260.00	2,500.00	30,000	18,600.00
Per Combine	62	10,000	33,000.00	550.00	500.00	8,000	200	600	1,440.00	6,780.00	8,220.00	2,500.00	Acres at	18,000.00
	9	10,000	75,000.00	1,500.00	3,000.00	9,000	200	600	1,200.00	5,000.00	6,200.00	2,500.00	16.9	47,500.00
Totals		30,000	139,100.00	2,550.00	4,075.00	25,600	680	1,880		19,680.00	7,500.00	5,070.00	84,100.00	374.40
						at 25¢	at 25¢	at 20.6¢			at \$3.00			at 5%
						\$6,400.00	\$170.00	\$387.28			22,500.00			4,205.00
2001 and Over	53	20,000	86,000.00	1,000.00	840.00	17,500	500	2,000	1,334.00	10,500.00	11,834.00	5,000.00	45,620	56,500.00
Per Combine	46	15,320	59,800.00	1,100.00	450.00	14,363	383	1,149	766.00	12,026.20	12,792.20	3,830.00	Acres at	44,000.00
	36	10,300	48,400.00	750.00	535.00	9,013	258	773	1,236.00	9,270.00	10,506.00	3,432.90	20.4¢	25,000.00
Totals		45,620	194,200.00	2,850.00	1,825.00	40,876	1,141	3,922		35,132.50	12,262.90	9,306.48	125,500.00	0.00
						at 25¢	at 25¢	at 20.6¢			at \$3.00			at 5%
						10,219.00	285.25	\$807.93			36,788.70			6,275.00
Total for Five Machines and Over Combine Custom Harvesters		75,620		5,400.00	5,900.00	16,619.00	455.25	1,195.21		54,812.50	59,268.70	14,376.48	10,480.00	374.40
Cost Per Acre (Cents)				7.1	7.8	22.0	0.6	1.6		72.5	78.4	19.0	13.9	0.5
Average Cost Per Acre (Cents)														2.23

1/ Family labor figured at \$1.00 per hour.

2/ Two dollars and fifty cents per day was allowed for board for those boarded by the employer.

3/ See Depreciation, Cost of Harvesting section.

Table 5. Farmer Costs of Harvesting  
(Per Season)

Intended Acreage Grouping	Code	Intended Acreage	Total Investment	Insurance	Combine Repairs	Gasoline (Gallons)	Oil (Quarts)	Grease (Pounds)	Labor			Tractor Fixed Costs	Combine Depreciation	Interest on Investment	Total Cost Per Acre	
									Family 1/	Hired 2/	Total					
(Acres)		(Acres)	(Dollar)	(Dollars)	(Dollars)	(Gallons)	(Quarts)	(Pounds)	(Dollars)	(Dollars)	(Dollars)	(Dollars)	(Dollars)	(Dollars)	(Dollars)	(Cents)
0-300 Per Combine	9F	250	2,800.00	0.00	75.00	250	8	17	100.00	102.00	202.50	48.73	2,640	600.00		
	10F	180	600.00	0.00	50.00	180	6	12	72.00	54.00	126.00	35.10	Acres	300.00		
	11F	210	1,400.00	0.00	25.00	210	14	21	168.00	0.00	168.00	40.95	at	600.00		
	12F	250	2,800.00	0.00	100.00	275	14	21	172.50	0.00	172.50	41.54	36.6¢	800.00		
	13F	225	3,000.00	0.00	10.00	315	9	18	216.00	0.00	216.00	52.65		1,000.00		
	14F	300	1,400.00	10.00	15.00	480	12	24	288.00	0.00	288.00	70.20		600.00		
	15F	300	1,700.00	20.00	15.00	400	20	40	120.00	124.80	244.80	58.50		1,800.00		
	16F	295	2,500.00	25.00	35.00	313	20	20	177.00	0.00	177.00	46.80		1,000.00		
	17F	200	3,200.00	0.00	15.00	240	10	20	96.00	64.00	160.00	64.80		1,000.00		
	18F	200	1,700.00	15.00	50.00	232	7	13	160.00	0.00	160.00	64.35		900.00		
19F	230	3,000.00	0.00	50.00	350	12	23	138.00	0.00	138.00	64.35		1,600.00	2.077		
Totals		2,640	24,100.00	70.00	440.00	3,245	132	229			2,052.80	581.67	966.24	at 5¢	2.077	
						at 25¢	at 25¢	at 20.6¢						480.00		
						\$811.25	\$33.00	\$47.17								
301 and Over Per Combine	20F	450	2,500.00	0.00	50.00	394	23	34	135.00	112.50	247.50	64.35	5,895	1,000.00		
	21F	585	2,700.00	0.00	150.00	585	29	59	175.50	292.50	468.00	87.75	Acres	700.00		
	22F	400	700.00	0.00	120.00	372	20	33	240.00	0.00	240.00	40.95	at	300.00		
	23F	350	1,100.00	0.00	50.00	437	23	35	280.00	93.45	373.45	70.20	21.5¢	400.00		
	2F	3,200	16,100.00	250.00	75.00	4,032	213	384	512.00	3,584.00	4,096.00	497.25		10,400.00		
	8F	450	3,700.00	0.00	0.00	300	15	30	180.00	135.00	315.00	87.75		1,300.00		
1F	460	3,275.00	50.00	237.00	920	61	92	184.00	552.00	736.00	181.35		2,275.00	2.298		
Totals		5,895	30,075.00	300.00	682.00	7,040	384	667			6,475.95	1,029.60	1,267.43	at 5¢	2.298	
						at 25¢	at 25¢	at 20.6¢						813.75		
						\$1,760.00	\$96.00	\$137.40								
Total Farmer Cost of Harvesting		8,535		370.00	1,122.00	2,571.25	129.00	184.57			8,528.75	1,611.27	2,233.67	1,293.75		
Cost Per Acre (Cents)				4.3	13.2	30.1	1.5	2.2			99.9	18.8	26.2	15.2	2.219	

1/ Family labor figured at \$1.00 per hour

2/ Two dollars and fifty cents per day was allowed for board for those boarded by the employer.

3/ See Depreciation, Cost of Harvesting section.

APPENDIX B, PART I



## WHEAT HARVEST STUDY

Department of Agricultural Economics  
Oklahoma A. and M. College  
Stillwater, Oklahoma

Date \_\_\_\_\_

Name \_\_\_\_\_ Age \_\_\_\_\_

Address \_\_\_\_\_

Farmer: Farm Size \_\_\_\_\_ Type \_\_\_\_\_ Tenure \_\_\_\_\_  
Wheat Acres \_\_\_\_\_ Own combines: Yes No Farm Located \_\_\_\_\_

Custom Operator: \_\_\_\_\_

Other Occupation	Nature	Size	Management During Harvest
:	:	:	:
:	:	:	:
:	:	:	:

## HARVESTING MACHINERY INVENTORY

1948	Combines	Trucks	Trailers	Other,
Number	S P	Conv.	Grain	Service: Living: Service: Specify
1947	:	:	:	:
1946	:	:	:	:
Present Value	:	:	:	:

## IDEAL COMBINATION

Combines	Trucks	Trailers	Other,
S P	Conv.	Grain	Service: Living: Service: Specify
:	:	:	:
:	:	:	:
:	:	:	:

Comments: \_\_\_\_\_

## WHO CUTS WHEAT

1948 (Expected Acres)	Cut for Self	Own Wheat Hired Cut	Custom Cut for Others	Price
1947	:	:	:	:
1946	:	:	:	:
1945	:	:	:	:
1944	:	:	:	:
1943	:	:	:	:
1942	:	:	:	:
1941	:	:	:	:
1940	:	:	:	:

Truck your own wheat? Yes No Distance from market \_\_\_\_\_ miles. Price \_\_\_\_\_

Could you afford to own a strictly grain truck? Yes No What acreage justifies a truck? \_\_\_\_\_ Acres.

COMBINE

Machine (Type - Make - Size)	:	:	:
Age	:	:	:
Acres this machine cut	:	:	:
Acres left before you sell	:	:	:
Value then:	:	:	:
Costs: (If conv. include tractor)	:	:	:
Gas per day:	:	:	:
Oil per day:	:	:	:
Grease per day:	:	:	:
Original Cost:	:	:	:
Repairs: This year	:	:	:
Last year	:	:	:
1946	:	:	:
1945	:	:	:
1944	:	:	:
1943	:	:	:
Total	:	:	:
Insurance: Cost and Type	:	:	:
Misc.	:	:	:
Season:	:	:	:
Expected season:	:	:	:
Days out now:	:	:	:
Cutting days expected:	:	:	:
Cutting days so far:	:	:	:
Acres per day expected:	:	:	:
What percentage of your gross income goes for moving:	:	:	:
Rebuild machines other than "normal" and costs:	:	:	:
What?	:	:	:
Comments:	_____		

	Acre		Day		Hour		Other (Specify)	
Labor:	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Without board	:	:	:	:	:	:	:	:
With board	:	:	:	:	:	:	:	:

In your conventional machine, what would it be worth per day to have your tractor free: \$ \_\_\_\_\_  
 Doing what? \_\_\_\_\_

Conditions under which you would hire: \_\_\_\_\_  
 : At \$2.00 Wheat  
 Yield : Should: Max or Min.  
 30 : :  
 20 : :  
 10 : :

Tractor Size: 1 P 2 P 3 P 4 P

FARMER

Why did you hire wheat cut: Cheaper Shorten harvest Weather risk n  
 No combine Other \_\_\_\_\_

Why did you cut your own wheat: Cheaper Shorten harvest Weather risk  
 No combine Other \_\_\_\_\_

How did custom operators work compared with:  
 Own machine or neighbor's: Better Same Poorer Remarks: \_\_\_\_\_

Do custom operators get farms back from highway: Yes No

Satisfied with custom cutting: Yes No

Do custom operators avoid: Terraced Rough Small fields

Do you fear being by-passed or delayed

What other problems face farmers who custom cut: \_\_\_\_\_

Do you contract ahead? Yes No Nature of contract: \_\_\_\_\_

Will you keep your machine: Yes No

Will you buy one when combines are cheap and plentiful: Yes No

How many acres justify owning a combine \_\_\_\_\_ Acres.

CUSTOM OPERATOR

No. of years custom operator: \_\_\_\_\_

Custom cut only locally? Yes No

Previous occupation: \_\_\_\_\_

Ownership: Operator owned Partnership Manager

Plan to go back next year: Yes No

Do you stay near highway: Yes No

Relatives in crew (List) \_\_\_\_\_

Ownership of crew members \_\_\_\_\_

Do you try to avoid: Terraced Sloping Rough Small fields Other \_\_\_\_\_

Route taken: \_\_\_\_\_

Cut \_\_\_\_\_ Acres for \_\_\_\_\_ farmers for \_\_\_\_\_ years.

Contract: Yes No Arrangements: \_\_\_\_\_

Comments: \_\_\_\_\_

APPENDIX B, PART II

OKLAHOMA AGRICULTURAL EXPERIMENT STATION  
SUPPLEMENTAL HARVEST SCHEDULE, 1948

Name \_\_\_\_\_ Enumerator \_\_\_\_\_  
 Address \_\_\_\_\_ Date \_\_\_\_\_ No. \_\_\_\_\_  
 Location \_\_\_\_\_ Area \_\_\_\_\_  
 Acres: In farm \_\_\_\_\_ No., ages, and types of combines  
           In crops \_\_\_\_\_ owned \_\_\_\_\_  
           In wheat \_\_\_\_\_ Acres harvested for others \_\_\_\_\_  
 Tenure \_\_\_\_\_ Acres hired harvested \_\_\_\_\_

Estimate on local community:

Percent of total acreage combined: Wheat \_\_\_\_\_; Oats \_\_\_\_\_; Barley \_\_\_\_\_

Percent of total acreage combined by:

- (1) Owner \_\_\_\_\_ %  
 (2) Local custom operator \_\_\_\_\_ %  
 (3) Non-local custom operator \_\_\_\_\_ %

Did local custom combiners do a satisfactory job this year? Yes \_\_\_\_\_ No \_\_\_\_\_

Comment \_\_\_\_\_

What about non-local combiners? \_\_\_\_\_

What about cleaning up the area? \_\_\_\_\_

Did non-local operators:

Clean up the area? Yes \_\_\_\_\_ No \_\_\_\_\_

Move out before the peak of harvest had been reached? Yes \_\_\_\_\_ No \_\_\_\_\_

Cut all the grain of those for whom they cut? Yes \_\_\_\_\_ No \_\_\_\_\_

Refuse to cut small isolated terraced or rough fields? Yes \_\_\_\_\_ No \_\_\_\_\_

Were any fields by-passed or delayed because custom operators pulled out before harvest was complete? Yes \_\_\_\_\_ No \_\_\_\_\_

Were there sufficient local machines remaining in the area to harvest late grain or fields left by non-local operators? Yes \_\_\_\_\_ No \_\_\_\_\_.

Comment \_\_\_\_\_

What was the usual rate for combining in your area this year: \$ \_\_\_\_\_; In 1947 \$ \_\_\_\_\_. Range: 1948 \$ \_\_\_\_\_ to \$ \_\_\_\_\_; 1947 \$ \_\_\_\_\_ to \$ \_\_\_\_\_.

Was it necessary to hire trucks working with custom combiners this year in order to get them cut? Yes \_\_\_\_\_ No \_\_\_\_\_; 1947 Yes \_\_\_\_\_ No \_\_\_\_\_

Rate for hauling: 1948 \_\_\_\_\_ ¢ per bu. \_\_\_\_\_ Mi. \_\_\_\_\_

Rate for hauling: 1947 \_\_\_\_\_ ¢ per bu. \_\_\_\_\_ Mi. \_\_\_\_\_

Estimate of Relative Importance and Performance of Different Types of Combines in Local Community

	:	Pusher Type	:	Pull Type	
				One Man	Two Men
Percent	:	:	:	:	:
Usual size	:	:	:	:	:
Acres per day	:	:	:	:	:
Hours per day	:	:	:	:	:

For those who hired combining this year:

Have you owned and operated your own combine? Yes \_\_\_\_\_ No \_\_\_\_\_. When \_\_\_\_\_

When combines are easier to secure will you still hire custom combiners?

Yes \_\_\_\_\_ No \_\_\_\_\_. Why \_\_\_\_\_

Why did you hire your grain harvested rather than own and operate your own equipment? \_\_\_\_\_

What assurance do you have that there will be an adequate supply of custom combiners? \_\_\_\_\_

With price, costs, and yields remaining as they are at present, how much would you pay for combining rather than do the job yourself? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

For those who did not hire custom combining this year:

Have you hired combining done other years? Yes \_\_\_\_\_ No \_\_\_\_\_. When \_\_\_\_\_

\_\_\_\_\_

Why do you prefer to operate your own machine rather than to hire it done?

Cost, independence, risk, harvest for others, better job of harvesting,  
other reasons: \_\_\_\_\_

\_\_\_\_\_

With prices, costs, and yields remaining as they are at present how much would you be willing to pay for custom combining and not operate your own machines? \_\_\_\_\_

\_\_\_\_\_

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