

**1998 Harvest Year Report
for USCHI's
Custom Harvester Analysis and Management Program (CHAMP)**

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Background and Structure

At the urging of around 25 USCHI (U.S. Custom Harvesters, Inc.) members, a pilot financial management program was initiated in January, 1998. The program was soon coined CHAMP, for Custom Harvester Analysis and Management Program. CHAMP, conducted by two economists at Kansas State University (K-State), Kevin Dhuyvetter and Terry Kastens, relies chiefly on results from a participant mail-in survey. The purpose of the program is to provide participants (CHAMP members) with important economic and production information about themselves. In this program, each participating firm is able to evaluate its production and economic performance relative to the CHAMP group as a whole, with individual firm information remaining confidential.

CHAMP is designed to be dynamic, so that it's accuracy and relevance can improve over time. Besides immediately providing useful information to individual participants, pending sufficient representation in the future, this program could provide custom harvesting industry trend information over time and be instrumental in guiding future government lobbying efforts.

Each year, following compilation of the survey information in early March, each CHAMP member receives a report showing how it stands relative to group benchmarks or averages. In that report, individual cost categories are reported so participants can see

where best to focus their management efforts to increase profits. Additionally, this written report, which depicts only aggregate values of interest (not values for individual members) is made publicly available each year. At the spring annual meeting of USCHI, Dhuyvetter and Kastens present survey results in some detail to CHAMP members, conduct short one-on-one consultations with individual members, and make a brief presentation to the USCHI membership.

A formal CHAMP guidance or advisory committee was established by USCHI in 1998. The advisory committee's main role is to serve as a liaison between CHAMP members and the K-State economists conducting the program – ensuring that members' economic analyses needs are being met over time. The committee also serves as an important link between CHAMP membership and the overall USCHI membership in general, and USCHI's governing committee in particular. More specifically, the CHAMP committee helps 1) devise the questions asked in the annual mail-in survey, 2) determine arrangements for funding the CHAMP program, and 3) describe and promote the program to other custom harvesters.

USCHI members initiated CHAMP and USCHI strongly supports it. For the 1998 harvest year, membership cost was \$150 per member, with \$75 paid by the member and \$75 paid by USCHI. In addition, USCHI pays expenses incurred by Dhuyvetter and Kastens for conference and meeting attendance and for

printing. Also, the mass mailings required of the CHAMP program are funded by USCHI and are conducted from USCHI's national office in Tullia, Texas. However, to ensure confidentiality throughout, completed surveys are returned directly to K-State and not to USCHI.

Survey Results

The 1998 harvest year survey was mailed in early January, 1999 to around 650 USCHI harvester members. Respondents were asked to provide detailed production and financial information, some which has not typically been compiled by custom harvesting firms. Additionally, they were asked to prorate financial information between the custom harvesting business and any side business. As of March 2, 1999, despite membership feedback in 1998 suggesting a higher response rate, only 25 surveys were returned, which compares to 39 in the previous year. One factor contributing to the low response rate may have been a relatively profitable 1998 harvest year for many custom harvesters, making it difficult for them to perceive a sufficient return to the extra accounting required of the CHAMP program. Needless to say, with that small sample size, it is inappropriate to assert that this analysis involves industry representative data. Nonetheless, although 25 responses may be inadequate for industry representation or certain intense statistical analyses, it is adequate to garner some understanding of custom harvesters' economic performance.

As with the first annual CHAMP survey and mail-in surveys in general, in this survey there was plenty of room for error. In a number of cases, follow-up phone calls were used to clarify information provided. To maximize the number of useable responses in this analysis,

some judgement had to be exercised in modifying and interpolating survey responses. In all such cases, the judgement was a joint effort of both Kevin Dhuyvetter and Terry Kastens – individuals who have extensive experience in working with farm and custom harvester financial analyses. Nonetheless, because of CHAMP advisory committee efforts to improve the previous year's survey, and because 20 of 25 surveys were completed by repeat members (5 responses were from new members), the judgement required in this analysis was substantially less than in the previous year's analysis. The fact that the surveys of the 20 repeat members were considerably more clear than last year indicates there is a "learning curve" associated with filling out the forms, and more importantly, this better understanding of the economic principles of the business indicates improved management abilities.

Throughout this report, references to a particular year mean that harvest year and are associated with the survey mailed in January following harvest. Unless specified otherwise, averages reported here are firm averages. That is, some values require first averaging within a firm and then across firms. For example, reported average profit per acre is calculated by first computing profit per acre within each firm, then averaging each firm's profit per acre across all responding firms. This answers the question, Randomly choosing a firm, what would I expect its profit per acre to be? Caution must be used in interpreting such results. For example, if large firms (those harvesting many acres) are profitable but small firms are not, the average profit per acre reported here could be negative even though the typical acre being harvested by the industry is harvested at a profit.

General Information

The first page of the 1998 survey, the Information Page, requests general information of interest to custom harvesters. Information ranged from demographics and business structure to questions designed to uncover how important custom harvesting was to a member's overall business, as well as questions about family involvement.

Compared to 10 in 1997, 1998 CHAMP members were located in 7 states, with most (16) in Kansas. The average age of the main person in charge was 45.4 years (47.0 years in 1997), which is somewhat younger than the average age of U.S. farmers, which is regularly asserted to be in the mid 50's. Of the 25 1998 members, 2 operated as partnerships, 10 as corporations, and 13 as sole-proprietorships. As in 1997, firms appear to be generally well established, with an average number of years in business of 24.9 (23.9 in 1997).

Most (11) members indicated they typically run their combines only 1 year, while two indicated they run combines 1-2 years, six for 2 years, two for 2-3 years, and three for 3 years (1998 average is 1.9 years against 2.2 years in 1997). Not surprisingly, 15 members indicated they typically run new combines, 9 run used combines, and 1 runs either or both of new and used.

In addition to custom harvesting, a large majority (22 of 25) of members have sideline businesses. Farming/ranching was a sideline for 13 (52%) of the members, 9 (36%) were involved in a trucking business, and 6 (24%) had some other type of sideline business.

Twenty-one of 25 (84%) of members typically pull mobile homes rather than stay in motels (79% in 1997). On average, 43.4% of the

meals are from a restaurant rather than home-prepared (38.4% in 1997). Yet, nearly half of the members take 30% or less of their meals from restaurants.

On average, managers indicate they allocate 73.1% of their time to the custom harvesting business. Many (10) fell in the 71-80% category, while 3 indicated 100% of their time was allocated to the custom harvesting business. On average, 6 months are spent in harvesting; yet, 6 members indicated they spend 7 or more months in harvesting. Of the 24 CHAMP members reporting the number of customers they normally harvest for, 8 ranged between 21 and 30 customers while 4 have over 60 customers each year. The average number of customers was 33.4.

At the harvest season peak, member harvesters employ 8.5 individuals on average, with the most common number indicated to be between 6-7 people. Of the total season-peak individuals, 31.3% were family member. On average, the typical non-family employee stays with a harvester for 2.0 seasons, with 3 firms retaining non-family crew members for 3 or more years. However, nine of the 25 CHAMP members indicated their non-family employees stay with them less than 2 years on average.

Over half (13 of 25) of the members split their machines up when harvesting. Over three-fourths (19) finance their combines through the dealer/manufacturer. With a minimum of 5% and a maximum of 10.25%, the average reported interest rate on loans in 1998 was 8.9%.

Combine Information

The second page of the 1998 survey, the Combine Page, reports details about the combines used by CHAMP members – such as

brand, model year, types of headers used, hours of use, and other descriptive features. In addition, start-of-season and end-of-season values of combines were also reported on this page. Changes in those seasonal values provide an estimate of annual market depreciation, which averaged 13.4% across the 92 combines listed by members.

John Deere made up 67.4% of the 92 combines, with 27.2% for Case-IH, and 5.4% for all other brands. This compares with 1997 values of 58% for Deere, 37% for Case-IH, and 5% for other brands. Most commonly (54.3% of the total), combines were of model year 1998. Over 90% were 1995 or newer combines. A large majority (90%) of combines were owned rather than rented (10%) or leased (0%). This is comparable with 1997, where 95% of the combines were owned rather than leased or rented.

The typical combine was used for 577 separator hours in 1998 and had 1,106 hours on the separator hourmeter at the end of 1998 or when it was traded if traded during the year. However, usage rates were quite disperse, likely reflecting that firms differ in the amount of time spent on the harvest run, are subjected to different weather-related harvest delays, have different amounts of downtime, and have different management styles. In 1997, a typical combine was used for 585 hours and had 1,156 hours at the end of 1997 or when it was traded.

Comparing the 1997 and 1998 numbers just stated is not straightforward, as combine trading patterns can affect the numbers. For example, if combines are traded near or at the end of the season (before the next calendar year), low average hours per combine will result – along with numbers of combines per harvester that may be substantially greater than

the typical number of combines simultaneously operated by that harvester.

In 1998, on average across the 25 CHAMP members, the number of combines simultaneously operated was 3.2 (3.5 in 1997), with the most typical number reported to be 3. Using the total combine separator hours accumulated during 1998 for each member, divided by the number of machines simultaneously operated by that member, provides a better picture of harvest intensity. The average of this value (across the 25 members) in 1998 was 641 separator hours. While nearly half of the members fell in the 500-700 hours-per-combine range, it is worth noting that a number of members displayed substantially greater harvest intensity, at 800-1,000 hours per combine. The 641 hours per combine in 1998 compares with 581 in 1997, perhaps reflecting better harvesting weather in 1998. Consistent with that, approximately 10% increase in hours per combine from 1997 to 1998, acres per combine were also higher in 1998 (5,852 acres) compared to 1997 (5,505) – using the same definition of “per combine.”

Closely related to hours per combine and acres per combine is acres per hour, which was 9.23 in 1998 vs. 9.51 in 1997. Apparently, higher yielding crops in 1998 compared to 1997 resulted in slower travel, which would explain why hours/combine increased more (on a percentage basis) from 1997 to 1998 than did acres/combine. Just as with hours and acres, members display wide variability across acres per hour, with one member under 5 acres per hour and one member over 12 acres per hour. Of course, this is also partly due to the types of crops harvested – some crops naturally require slower travel speeds.

Of 92 total combines reported, 87.0% have a grain platform (average width of 29.2 ft.),

40.2% have a flex head (26.1 ft.), 70.7% have a cornhead (average 8.7 rows), 30.4% have a row crop head (average 8.0 rows), 70.7% have a pickup attachment, 15.7% have a draper platform (average width of 31.8 ft.), 82.6% have a chaff spreader, 37.0% have a yield monitor and 15.2% are GPS-equipped. In general, these values were not especially different from 1997. Nonetheless, that draper platforms rose from 10.2% in 1997 to 15.7% in 1998 and that GPS-equipped yield monitors fell from 21.2% in 1997 to 15.2% in 1998 could be noteworthy. However, because the total number of operations was not large in either year (39 in 1997 and 25 in 1998), coupled with the fact that operators may tend to be consistent across the machines they operate, the effective sample size appropriate for making reliable inferences may be closer to the number of operations than the number of combines. Thus, caution should be observed in making too much of observed differences between 1997 and 1998.

Trucks and Supporting Equipment

The second page of the 1998 survey, the Non-combine Harvesting Equipment Page, reports details about grain trucks, trailers, service vehicles, and other supporting equipment used by CHAMP members. At an average model year of 1987.4, the 103 grain trucks (not trailers) reported by members were substantially older than the combines they operate. Tandem-axle trucks made up 59% of the 103, with the remainder being semis. No single-axle grain trucks were reported. Members choose to own 91% of their grain trucks as opposed to leasing or renting. On average, 16,308 miles were put on each truck during the 1998 harvest season. At the end of 1998 the average odometer reading was a hefty 532,901, likely indicating that many of the trucks had been at one time or were currently

being used for over-the-road hauling.

Start-of-season and end-of-season values of grain trucks were used to estimate market depreciation, which averaged 5.2% across the 94 trucks where those values were reported. Apparently, trucks depreciate much more slowly than do combines, which had an average depreciation of 13.4%. Of course, differences in age between trucks and combines might partly explain that.

Crops Harvested and Revenue Generated

The annual survey solicits information regarding the number of fields, acres, and bushels of each crop harvested in each state, the associated revenue coming from those crops and how it was split between combining and trucking, as well as the portion of harvested crops that was also hauled by the harvester. Typically, this information was included on the Revenue Page of the survey.

Collectively, 1998 CHAMP members harvested 493,038 acres (1997 = 751,804 acres), with 399,638 acres non-irrigated (81.1%) and 93,400 acres irrigated (18.9%). The percent of irrigated acres was similar to 1997. We defined small grains as wheat, barley, durum, and oats, which represented 364,654 acres (547,131 in 1997), or 74.0% (72.8% in 1997) of the total acres harvested. At 339,524 acres, wheat made up the majority (68.9% – same % as in 1997) of all crop acres harvested. Although wheat acres comprised 68.9% of total harvested crop acres, the revenue share for wheat, at 59.7%, was somewhat smaller. That is because other crops often garner more revenue per acre than wheat – likely because they are more expensive to harvest.

Across the states, Kansas had the most acres

harvested for wheat, corn, soybeans, milo, and sunflowers. But Montana had the most barley and the most acres of other crops harvested. The strong Kansas showing for fall crops is likely partly due to the large number of CHAMP members located in Kansas in 1998. Besides the usual crops of wheat, corn, milo, soybeans, barley, and sunflowers, many other crops were harvested as well. For example, canola, pinto beans, alfalfa seed, native grass seed, popcorn, and edible beans were each listed as being harvested by at least one firm.

Acres per field by crop did not reveal any startling differences, with soybeans having the smallest average field size, at 63.0 acres, and barley the largest, at 121.1 acres. Acres per field by state is a little more interesting, with Canada standing out as having the largest fields at 271 acres. Across all member reports the average field size was 94.3 acres.

Over all member reports for all crops, the average revenue received per harvested acre was \$25.65. Because of the higher yields associated with corn, especially irrigated corn, that crop stands out as generating the most revenue per acre (\$39.79). The results are somewhat reversed when revenue is depicted on a per bushel basis. Then, corn, at only 28¢/bu., is the least expensive crop to harvest and wheat, at 61¢/bu., is the most expensive.

Averaged across the various crops, and adjusted to hauling 100% of the crop if something other than 100% had been hauled by the harvester, trucking revenue made up 24.6% of total harvesting revenue. At 34%, the trucking portion was highest for corn and milo – which shouldn't be too surprising given that corn and milo are relatively high-yielding crops and that they also are more likely to be irrigated, making them higher yielding still. All other crops had less than 30% of the revenue

assigned to trucking.

Not surprisingly, most harvested grain is also hauled away from the fields by the harvesters. Across all member reports, the average percent of harvested grain that was hauled by the harvester was 91.7%. On a per crop basis, at 62.9%, other crops (canola, pinto beans, alfalfa seed, native grass seed, popcorn, and edible beans), had the least percent of harvester hauling.

Where hauling destination percent was indicated, among all bushels of all crops, 23.7% of hauled grain was hauled to the farm. Thus, most of the grain was likely hauled to commercial elevators instead. When destination of hauling was segregated by crop, wheat, barley, and other involved the greatest portions hauled to the farm. When segregated by state, the northern areas (Canada, Minnesota, Montana, and North Dakota) stand out as having the greatest portions hauled to the farm. That seems reasonable in that northern states tend to rely more on on-farm storage than do states closer to export terminals. It should be noted that some crops and some states did not involve many harvesters. Thus, the observed “hauled to farm” percentages may merely be due to particular customer traits rather than to reliable generalizations.

Members vary substantially in the crops they choose to harvest. The percent of harvested acres that are small grains is one indication of that choice. Although, on average, members harvest 73.1% small grains, for some firms, nearly half of the acres harvested involve crops that tend to be fall crops (not small grains), while other firms harvest over 80% small grains.

General Financial Information

For the most part, financial information was taken from the Cash Flow Page and the Balance Sheet, but asset values reported on equipment pages were used as well. Expense categories that could be meaningfully extracted include labor (paid and unpaid), travel, fuel and lubrication, repair and maintenance, insurance, telephone and utilities, other expenses, and market depreciation.

Far fewer judgement calls and data modifications were required of financial information in 1998 than in 1997. Yet, some modifications were required for the labor category. Although unpaid labor is often an important expense in economic analyses of agricultural businesses, it is easily overlooked because traditional tax accounting does not require it. Only four members (each was a new member in 1998) appeared to understate unpaid labor. Thus, for those four members, we arbitrarily added \$10,000 unpaid labor for each family member in the business. It will be easy to re-examine those four analyses if this is not considered to be a reasonable assumption.

Interest and Depreciation

In an economic analysis, interest and depreciation demand special treatment and explanation. Even if a firm operates with zero debt there is an opportunity cost on investment capital. After all, the money tied up in such a firm's assets could be invested elsewhere. Further, there is little reason to believe that the opportunity cost-of-money rate for a zero-debt firm is any higher or lower than the interest charged against actual loans for borrowers. Thus, we used an imputed investment interest expense equal to 9.0% of the value of all custom harvesting assets. Although we had also imputed an interest charge against one-half

of all cash operating expenses in 1997, we did not impute interest on operating expenses in 1998 because it seems reasonable that harvesting revenue generally comes in regularly during the harvest season – implying that expenses are likely paid from revenue as they are incurred.

For depreciable assets, economic (or market) depreciation is the loss in value due to usage over time. Although not a cash expense, depreciation is a true cost because it reflects a loss in net worth. However, economic depreciation is often much less than tax depreciation. As evidence of that, based on 1997 responses providing market and tax basis (book) machinery values, the typical market to book ratio was around 2.2 (if economic and tax depreciation were equal, this ratio would equal 1.0).

For this analysis, annual market depreciation was taken to be the change in combine value (from the Combine Page) plus the change in other equipment value (from the Non-Combine Page) from the beginning of the harvest season to the end of the harvest season (or to when equipment was traded, if relevant).

Total Expense Calculation

Total expense was calculated as:

Labor (paid and unpaid)	
+ travel	
+ fuel and lubrication	
+ repair and maintenance	
+ insurance (includes workmen's comp)	
+ telephone and utilities	
+ other expenses	
+ market depreciation	
+ <u>interest on assets (assigned)</u>	
= Total Expense	

Revenue and Operating Profit

Except for arithmetic and data entry errors, revenue is the straightforward sum of reported combine and trucking revenue from the Revenue Page and other revenue from the Cash Flow Page. Total Operating Profit is then defined as revenue less total expense. It should be noted that this is economic profit and it is expected to be zero in the long run. That is, a return to all assets (9.0%) has already been assigned. Thus, profit is the return above all operating costs plus the 9.0% return on assets.

To enhance understanding, various financial measures can be divided by the number of combines operated, the number of acres harvested, or the number of separator hours tallied. For an individual member this provides important comparison values. Departures from survey average values can show a firm where it's management may be weak (if categorical costs are substantially higher than survey averages) as well as areas where it may already have a comparative advantage.

Financial Ratios

Financial ratios can provide useful measures for comparing a member's financial situation with that of the group as a whole. Typically, financial ratios rely heavily on information taken from the balance sheet, which is a statement of assets and liabilities for the business.

The debt-to-asset (D/A) ratio is a straightforward calculation of total liabilities divided by total assets. It is a poor indicator of profitability but a good indicator of risk. That is, profitable firms can increase net worth rapidly with the higher leverage implied by a high D/A ratio. However, firms with high D/A ratios may not be able to withstand prolonged

periods of losses.

Return on assets (ROA) is calculated as {profit + interest} divided by some measure of total assets. Interest is added back to profits because it is a return to the borrowed portion of capital. Because of adding back interest, ROA can be used to directly compare firms that have substantially different debt loads. As used here, the assets are average annual assets, including known information about asset value during the year (from the Combine and Non-combine Pages): [(balance sheet beginning-of-year assets) + (balance sheet end-of-year assets) + (beginning-of-season combine and other equipment values) + (end-of-season combine and other equipment values)] / 4. The interest that is added back in the numerator of ROA is the amount that had been assigned in the first place (which was 9.0% times average assets).

Return on equity from the income statement (ROE – IS) is calculated as {profit + interest on equity} divided by some measure of equity or net worth, usually beginning equity. Only interest on equity is added back to our measure of profit – which had considered interest on all assets – because interest actually has to be paid on borrowed capital. As used here, the measure of equity or net worth is the average of beginning and ending custom harvesting net worth, taken from the Balance Sheet Page.

Return on equity can also be calculated from the balance sheet (ROE – BS), as the {change in harvesting equity over the year} divided by some measure of harvesting equity or net worth, usually beginning equity. Because the change in equity should equal the {profit + interest on equity} measure used in computing ROE – IS, the two ROE measures should be equal (unless different denominators are used across the two ROE measures, whereupon

small differences might be expected).

As used here, the change in equity over the year required in ROE – BS calculations would normally be taken as the change in custom harvesting net worth from the Balance Sheet Page. However, it is not unusual to find that a portion of expenses are often ignored or unaccounted for, making the {profit + interest on equity} measure used in ROE – IS greater than the {change in harvesting equity over the year} measure intended for ROE – BS, ultimately causing ROE – IS to overstate actual ROE. Second, a portion of profits may actually be taken out of the harvesting business, causing the {change in *harvesting* equity over the year} to be less than the {profit + interest on equity} measure used in ROE – IS, ultimately causing ROE – BS, thus measured, to understate actual ROE. Without largely ad hoc adjustments, the first problem is difficult to deal with. However, we at least partially dealt with the latter problem by using {change in *overall* equity} from the Balance Sheet Page as the numerator in our ROE – BS measure, and {beginning *overall* equity} from the Balance Sheet Page as the denominator in ROE – BS (where outside business equity was not reported we used only harvesting equity).

One measure of financial efficiency is the expense ratio (ER), which is simply calculated as expenses divided by revenue. It shows the expense required to generate each dollar of revenue.

Individual Firm Report

Attached to this report is an example of the type of report provided to each of the 1998 CHAMP members. The example firm (Happy Harvester Inc) has lower-valued combines, hence lower depreciation, than the average member, but sharply higher repair &

maintenance costs. At 4,733 acres harvested and 833 separator hours per combine, this firm covers less ground in more time than the average member, which had 5,852 acres and 641 hours per combine, likely reflecting less-reliable older equipment. Overall, at \$2.14/acre, the example firm had higher profit than the average member, at \$1.63/acre. The higher profit is again reflected in the Return on Assets measure and in the income-statement-based Return on Equity measure, which are both substantially higher than the same measures for the average member. But, the balance-sheet-based Return on Equity measure for the example firm is much lower than that of the average member, and more importantly, departs substantially from the income-statement-based Return on Equity measure. As noted earlier, this may reflect inconsistencies or deficiencies in data reporting.

On average, members have \$132,126 invested in each combine they operate and \$85,142 invested in supporting equipment for each combine they operate. Supporting equipment is valued at 72.8% of combines, on average, or 39.5% of all machinery and supporting equipment.

A number of graphs or figures that show member distributions of various revenue, cost, and/or profit categories are attached to this report. Most show substantial variability among firms. Given the distributions, it is easy to see why some firms might make large profits while others lose ground financially.

Other Analyses

A tradeoff between repairs & maintenance and market depreciation would be expected among harvesters. That is, firms that run older lower-valued combines, leading to lower depreciation, would be expected to have higher repairs &

maintenance. Indeed, comparing repair & maintenance per separator hour with depreciation per separator hour, we find a linear correlation of -0.41, implying that as one measure rises the other tends to fall.

Another notable relationship can be found between total operating expense per acre and profit per acre, which displays a linear correlation of -0.55. Clearly, lower costs leads to higher profits in a highly competitive business such as custom harvesting. However, at a given cost per acre, profit per acre still varies \$5-\$10 indicating that revenue must vary. The graph of revenue per acre vs. cost per acre shows that firms charging higher harvesting rates likely do so because they have higher costs. That is, they probably are harvesting crops that cost more to harvest. But more importantly, revenue varies far less than cost, which suggests firms may be able to do much more about their costs. That is, revenue is probably determined much more by the market, whereas costs are determined more by firm management.

Summary

The results of the 1998 CHAMP analysis indicate there is considerable variability in the profitability of harvesters. Much of the opportunity for individual firms to increase their profitability is in the area of cost control. However, to reduce costs it is imperative to know what the strengths and weaknesses of your business are so that management focuses in the right areas.

Participants in the CHAMP program receive information comparing their individual cost categories with the average of others. This helps them identify their comparative advantages. Based on the members that participated in the CHAMP program in both

1997 and 1998, harvesters' understanding of the economic principles of their businesses has improved through filling out the forms. This increased understanding can improve management efforts, which ultimately will make the individual harvester more competitive and profitable in the future.

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Custom Harvester Analysis and Management Program (CHAMP)
1998 Harvest Year
Individual Firm Report

Happy Harvesters Inc. Box 999 Wheat Country, KS 99999

	Firm Value	Survey Average Value	Firm Value per Combine	Survey Avg. of Value per Combine	Firm Value per per Acre	Survey Avg. of Value per per Acre	Firm Value per per Hour	Survey Avg. of Value per per Hour
Number of Machines Operated	3.0	3.22	----	----	----	----	----	----
Value of Combines	\$245,000	\$427,903	\$81,667	\$132,126	\$17.25	\$24.19	\$98.00	\$216.85
Value of Other Equipment	\$90,000	\$289,716	\$30,000	\$85,142	\$6.34	\$14.81	\$36.00	\$138.74
Value of Other Assets	\$10,000	\$51,470	\$3,333	\$12,440	\$0.70	\$1.94	\$4.00	\$18.43
Total Assets	\$345,000	\$769,088	\$115,000	\$229,708	\$24.30	\$40.94	\$138.00	\$374.03
Total Acres Harvested	14,200	19,722	4,733	5,852	1.0	1.0	5.68	9.23
Small Grains Percent	75.0	73.1	----	----	----	----	----	----
Total Fields Harvested	125	149	43.3	56.3	95.0	112.8	----	----
Total Separator Hours in 1998	2,500	2,124	833	641	0.176	0.113	1.0	1.0
INCOME AND EXPENSE								
Combine & Truck Revenue	\$300,000	\$450,131	----	----	----	----	----	----
Other Revenue	\$500	\$11,862	----	----	----	----	----	----
Total Revenue	\$300,500	\$461,993	\$100,167	\$137,270	\$21.16	\$23.40	\$120.20	\$216.33
Labor (paid and unpaid)	\$53,000	\$88,408	\$17,667	\$26,089	\$3.73	\$4.35	\$21.20	\$40.12
Travel	\$12,000	\$21,629	\$4,000	\$6,573	\$0.85	\$1.12	\$4.80	\$10.30
Fuel and Lubrication	\$18,500	\$43,140	\$6,167	\$12,720	\$1.30	\$2.17	\$7.40	\$19.93
Repair and Maintenance	\$75,000	\$52,963	\$25,000	\$16,039	\$5.28	\$2.77	\$30.00	\$24.83
Insurance	\$10,000	\$16,961	\$3,333	\$5,360	\$0.70	\$0.91	\$4.00	\$8.36
Telephone and Utilities	\$5,000	\$8,740	\$1,667	\$2,464	\$0.35	\$0.42	\$2.00	\$3.86
Other Expenses	\$58,000	\$42,974	\$19,333	\$12,896	\$4.08	\$2.11	\$23.20	\$19.61
Market Depreciation	\$7,500	\$83,508	\$2,500	\$24,008	\$0.53	\$4.24	\$3.00	\$39.56
Interest on Assets (assigned)	\$31,050	\$69,218	\$10,350	\$20,674	\$2.19	\$3.68	\$12.42	\$33.66
Total Expense	\$270,050	\$427,540	\$90,017	\$126,824	\$19.02	\$21.78	\$108.02	\$200.23
Total Operating Profit	\$30,450	\$34,453	\$10,150	\$10,447	\$2.14	\$1.63	\$12.18	\$16.11
Debt-to-Asset Ratio (end of year)	50.0%	44.1%						
Return on Assets	26.4%	14.5%						
Return on Equity (based on IS)	48.8%	18.6%	<===	Calculated as the operating profit + interest charged on equity divided by average equity.				
Return on Equity (based on BS)	-11.4%	1.3%	<===	Calculated as the change in balance sheet equity divided by the beginning of year equity.				
Expense/\$100 Revenue	\$81.32	\$93.61						

* Value used per acre for Total Fields Harvested represents the average field size in acres.

Note: Some reported values were modified from those reported on the survey due to arithmetic and other data entry errors.

1998 Harvest Year Report for USCHI's Custom Harvester Analysis and Management Program (CHAMP)

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1

CHAMP: 1998 vs 1997

- Participation decreased (25 vs 39)
- Repeat members 80% (20 of 25)
- Improved quality of returned surveys
 - Learning curve associated with filling out forms
 - Better understanding of economic principles

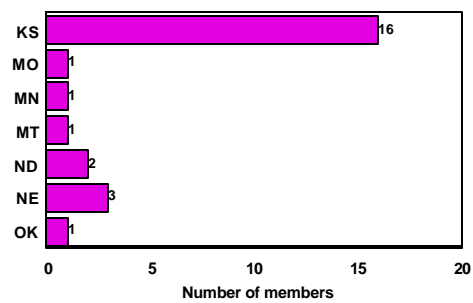
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General Information

- Location
- Age of manager
- Business structure
- Years in business
- Age and number of combines
- Relative importance of business
- Housing and meals
- People involved in business
- Number of customers

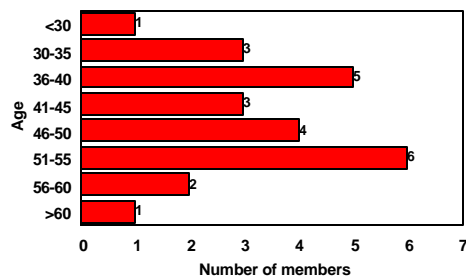
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State where business is located



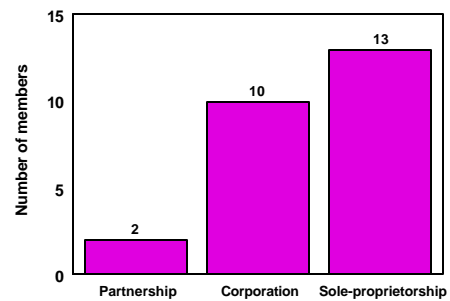
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Age of main person in charge
(average = 45.4)

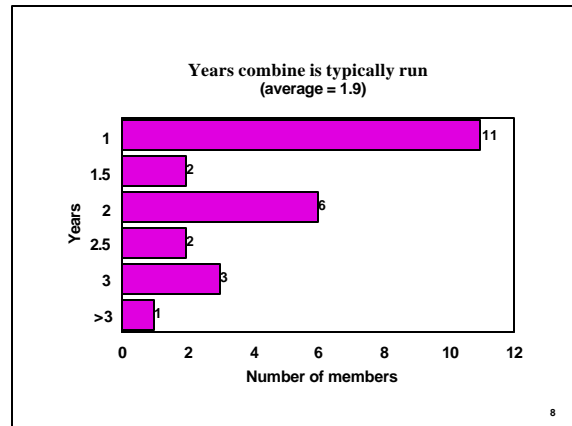
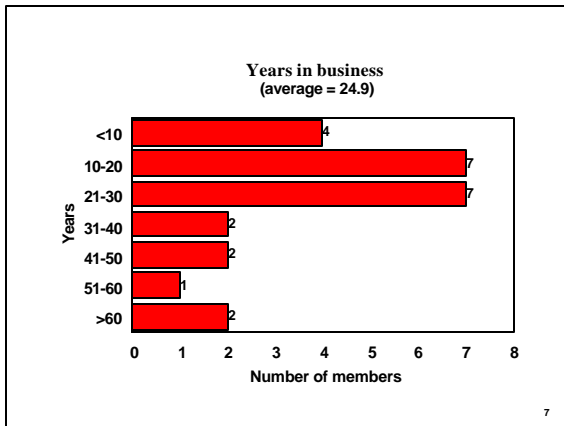


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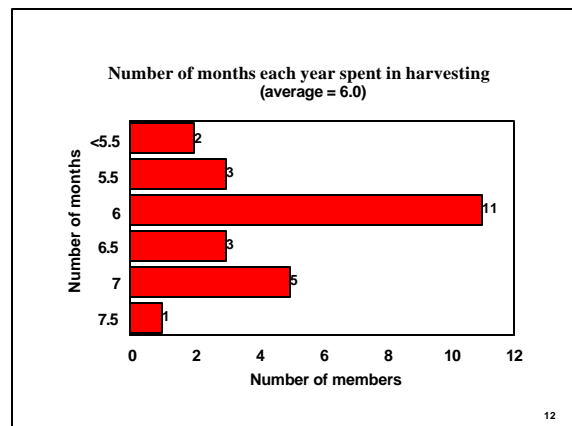
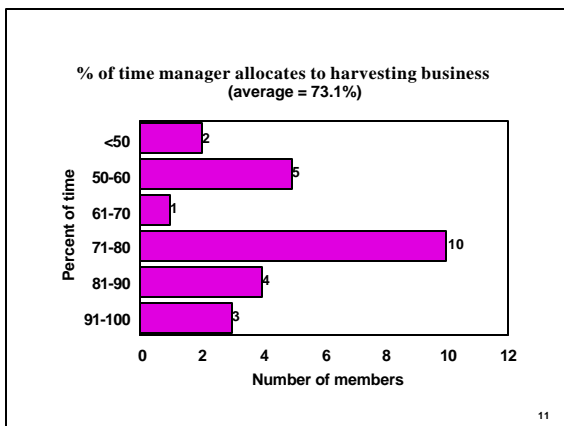
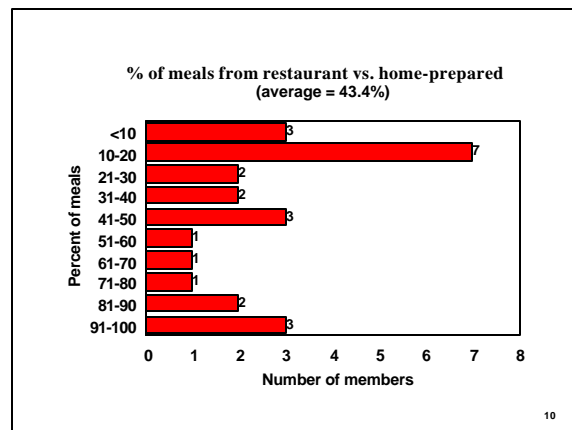
Business structure

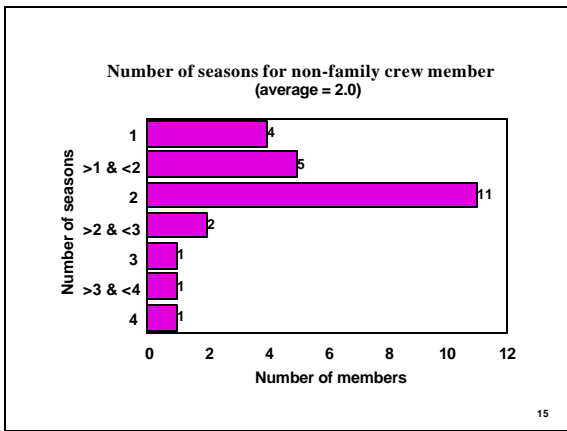
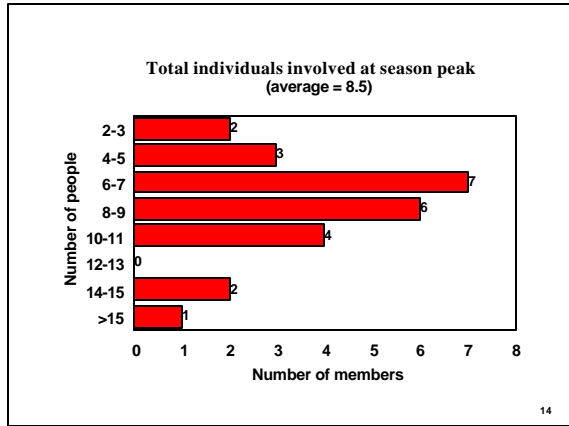
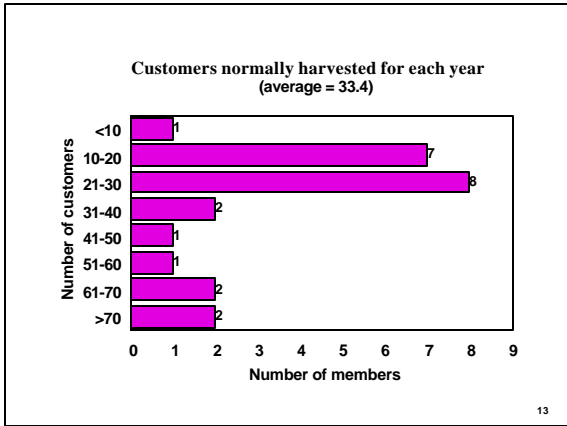


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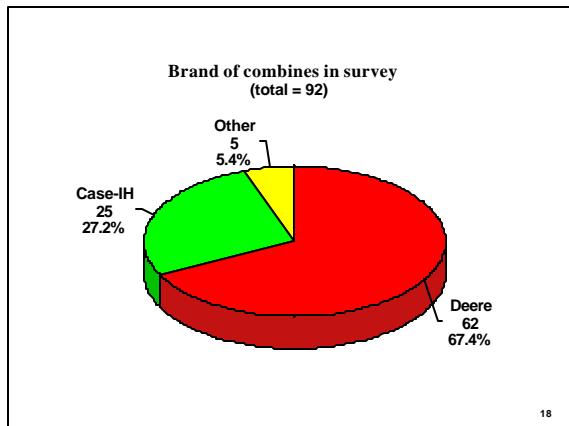
- Miscellaneous Information**
- 15 run new combines
 - 9 run used combines
 - 1 runs new or used
 - 22 of 25 had sideline businesses
 - 52% involved in farming/ranching
 - 36% involved in trucking
 - 24% involved in other businesses
 - 84% pull mobile homes (vs. stay in motels)
- 9

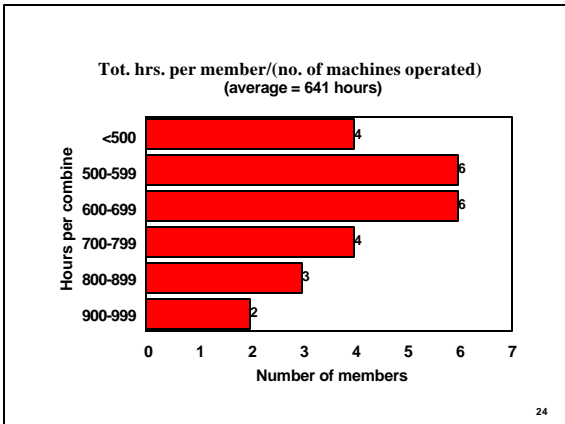
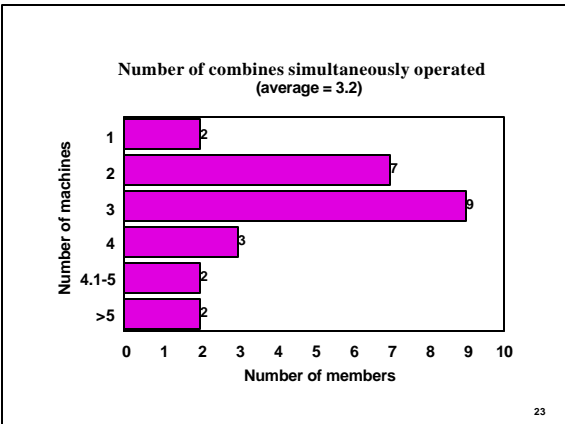
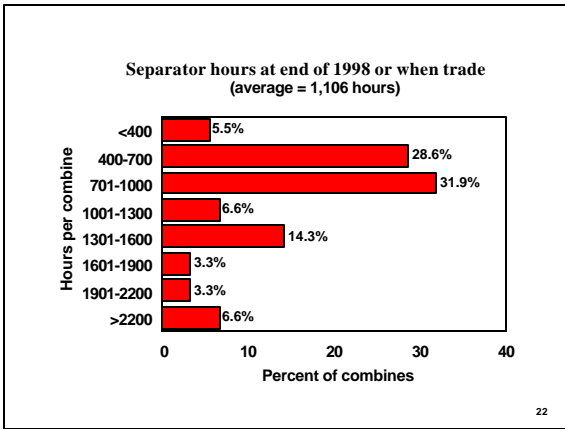
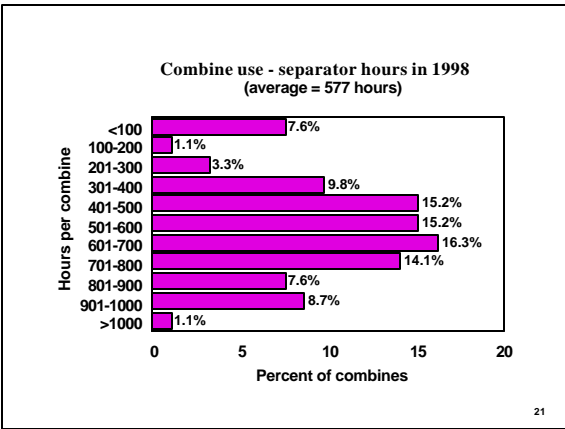
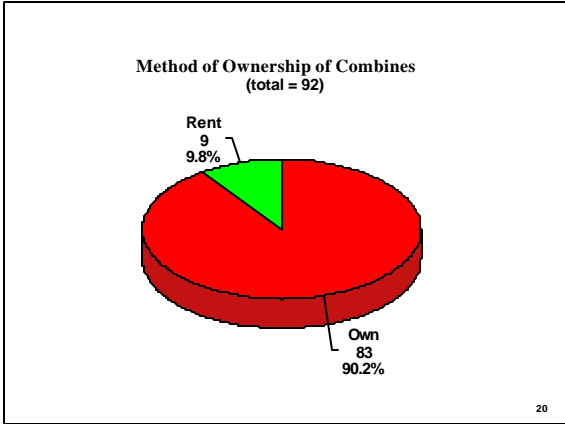
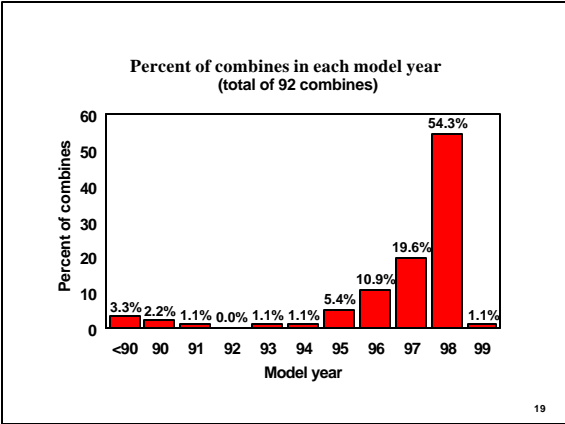


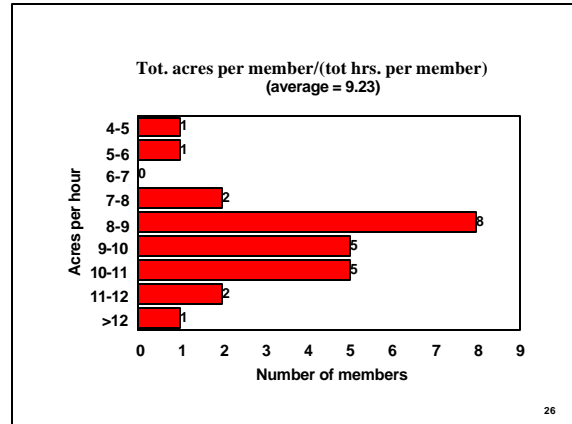
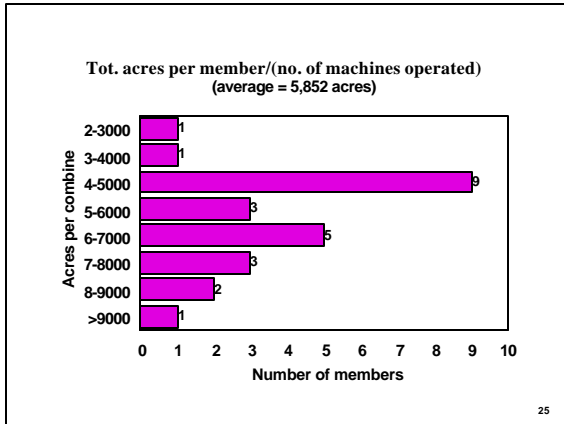


- More Miscellaneous Information**
- 13 of 25 split their machines
 - 31.3% of season-peak employees are family
 - 19 of 25 finance their combines through dealers/manufacturers
 - Average interest rate was 8.9%
 - minimum = 5.0%
 - maximum = 10.25%
- 16

- Combine Information**
- Brand
 - Model year
 - Own, lease, or rent
 - Headers
 - Hours used
 - Auxiliary equipment
 - Beginning and end-of-season values
 - Average depreciation 13.4% (92 total)
- 17







Combine Headers & Equipment
(92 combines)

- Grain platform 87.0% 29.2 ft.
- Flex head 40.2% 26.1 ft.
- corn head 70.7% 8.7 rows
- row crop head 30.4% 8.0 rows
- pickup 70.7%
- draper 15.7% 31.8 ft.
- chaff spreader 82.6%
- yield monitor 37.0%
- GPS equipped 15.2%

27

Grain Truck Information (103 total)

- Average year 1987.4
- % Tandems 59%
- % Semis 41%
- % owned 91%
- Average miles in 1998 (92 total) 16,308
- Avg. miles (end of 1998; 63 total) 532,901
- Average depreciation 5.2%

28

Revenue Information

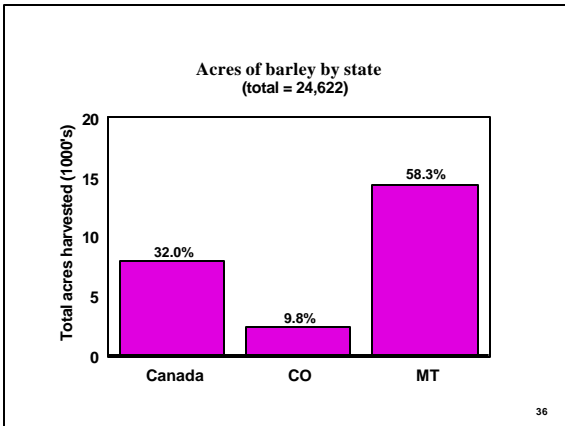
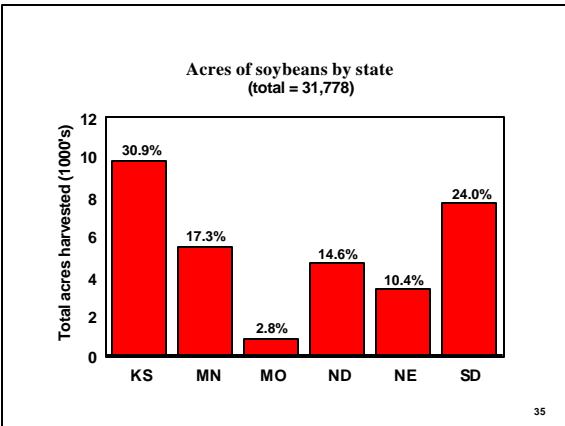
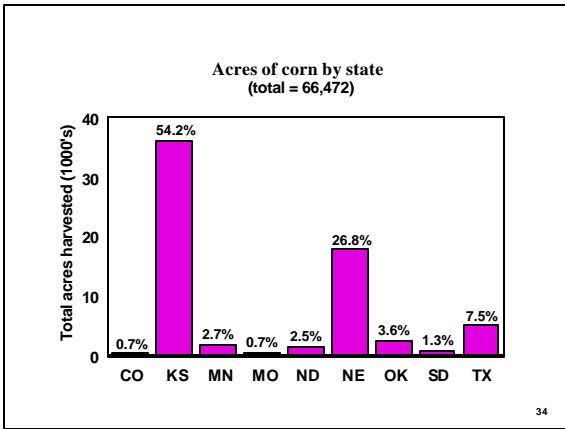
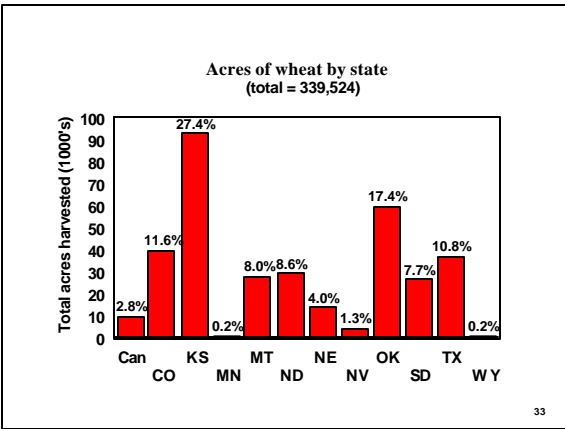
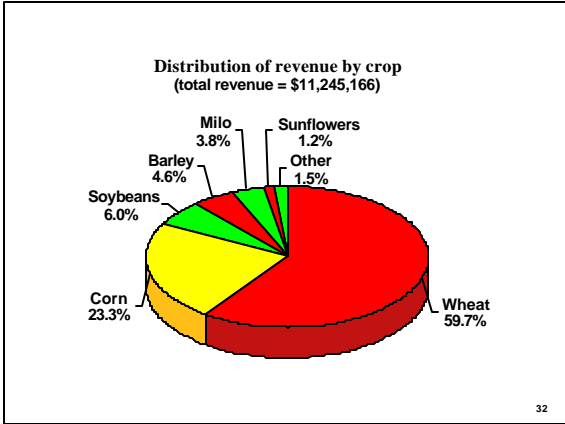
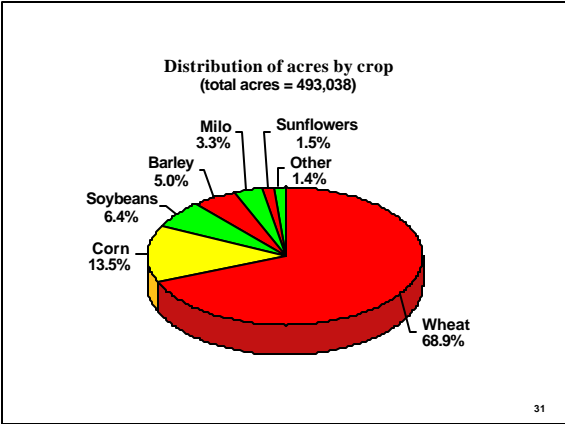
- Acres harvested
 - irrigated vs. non-irrigated
- Crops harvested
 - small grains vs. other
- Harvest states
- Number of fields
- Percent hauled to farm
- Combine vs. trucking revenue

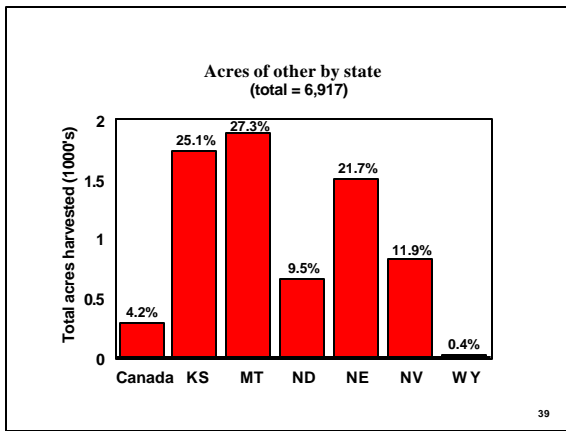
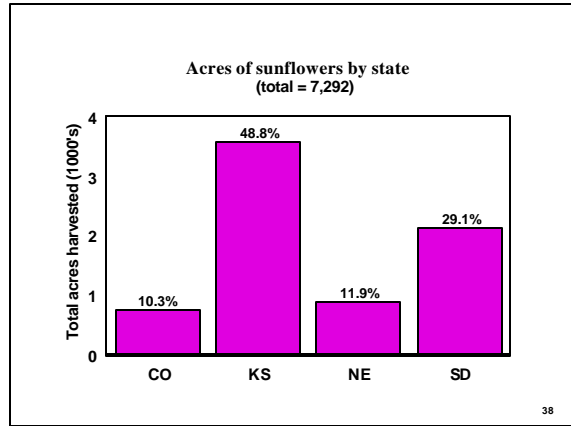
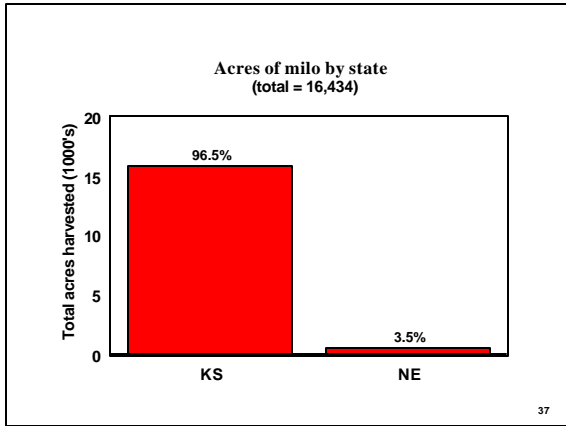
29

Acreage Information

- Non-irrigated -- 399,638 acres (81.1%)
- Irrigated -- 93,400 acres (18.9%)
- Small grains -- 364,654 acres (74.0%)
 - Wheat durum, barley, oats
- Other – 128,384 acres (26.0%)
 - Corn, soybeans, milo, sunflowers, pinto beans, alfalfa seed, native grass seed, popcorn, edible beans, canola
- Total – 493,038 acres

30



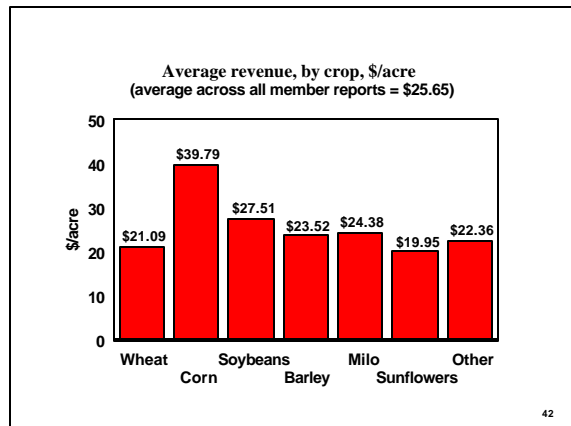
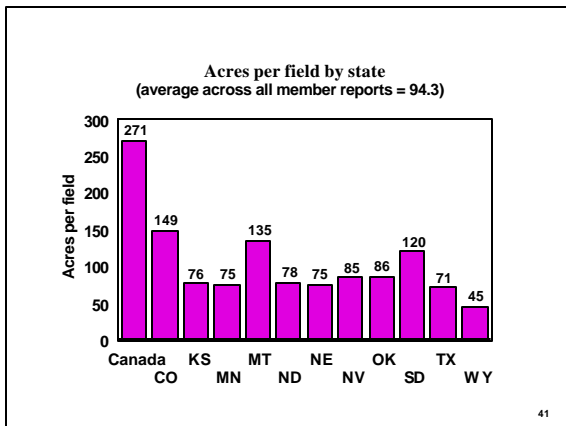


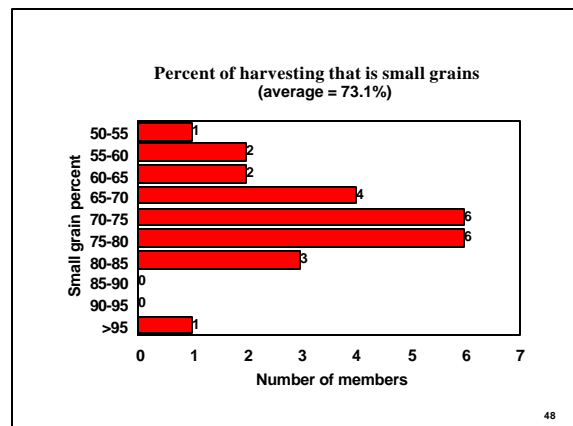
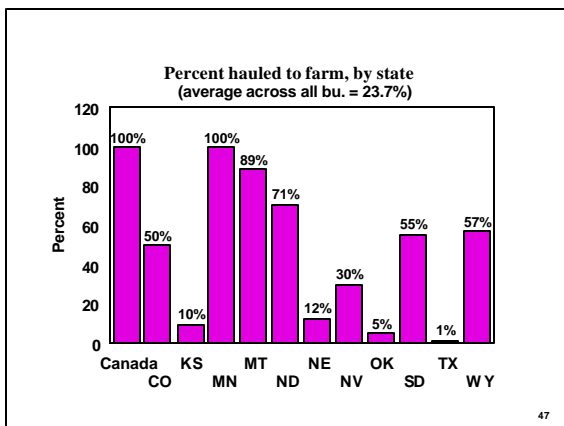
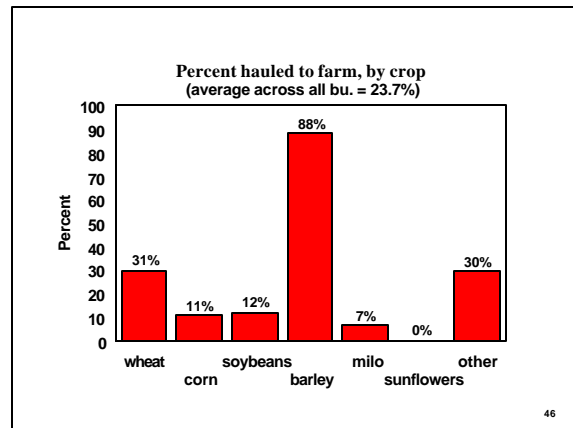
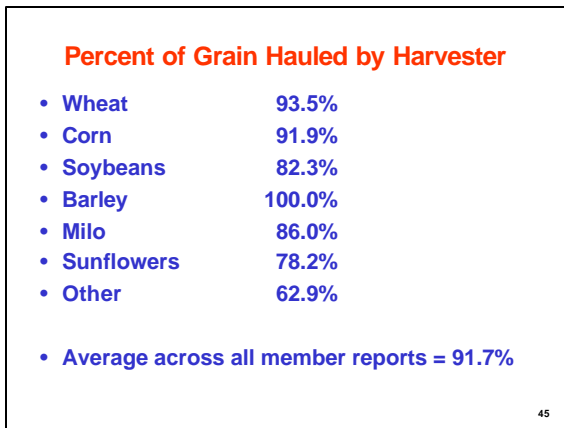
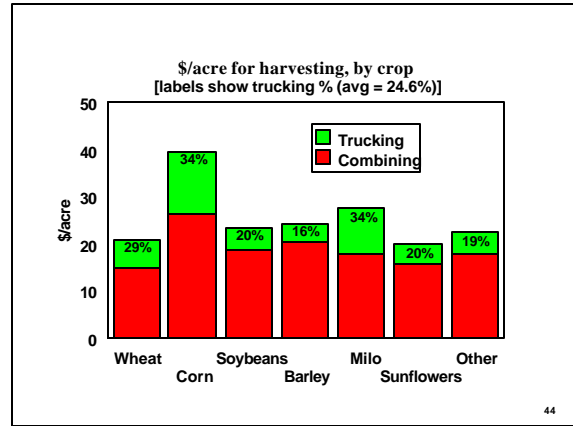
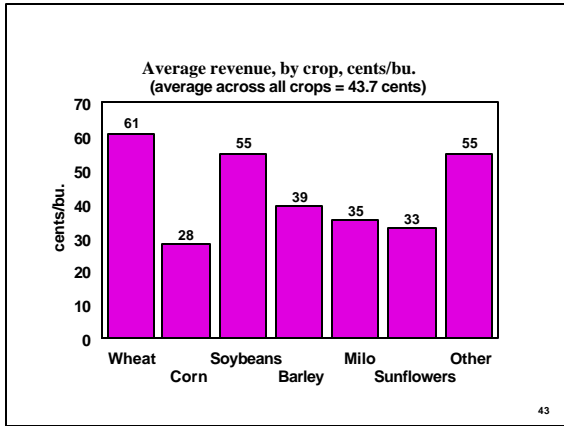
Acres per Field

- Wheat 92.3
- Corn 74.3
- Soybeans 63.0
- Barley 121.1
- Milo 73.8
- Sunflowers 105.4
- Other 101.7

- Average across all member reports = 94.3

40



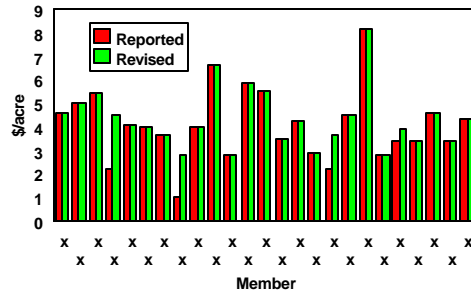


Operating Expense Information

- Labor (paid and unpaid)
- Travel
- Fuel and Lubrication
- Repair and Maintenance
- Insurance
- Telephone and Utilities
- Other Expenses
- Market Depreciation
- Interest on Assets (assigned)

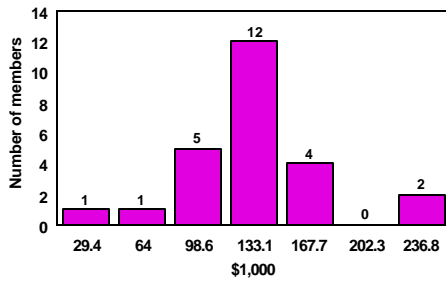
49

Reported vs. revised total labor, \$/acre harvested



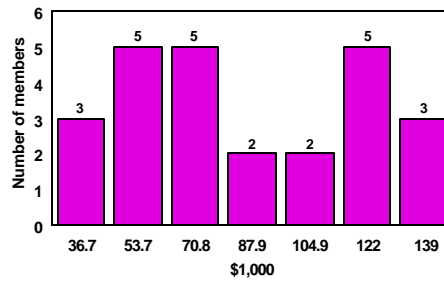
50

Value of combines per combine
(average = \$132,126)



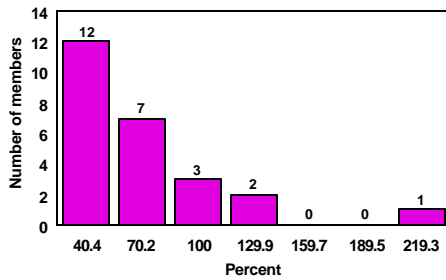
51

Value of other equipment per combine
(average = \$85,142)



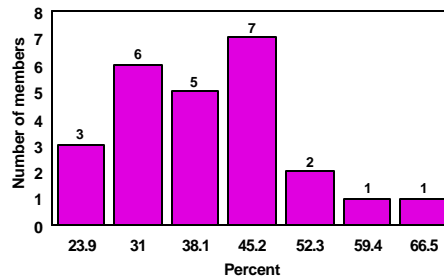
52

% other equipment is of combines
(average = 72.8%)

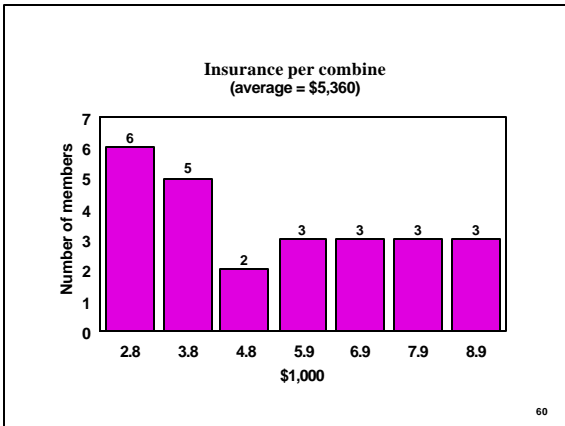
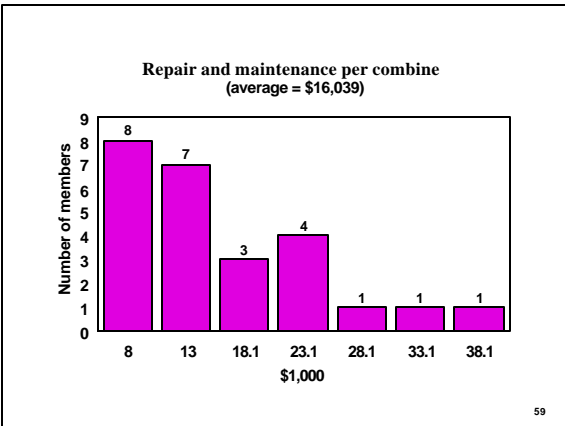
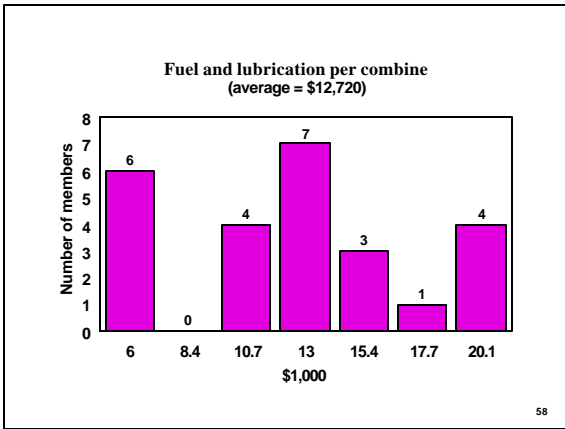
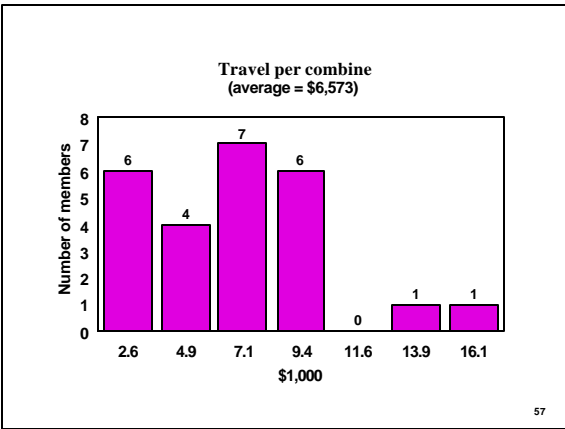
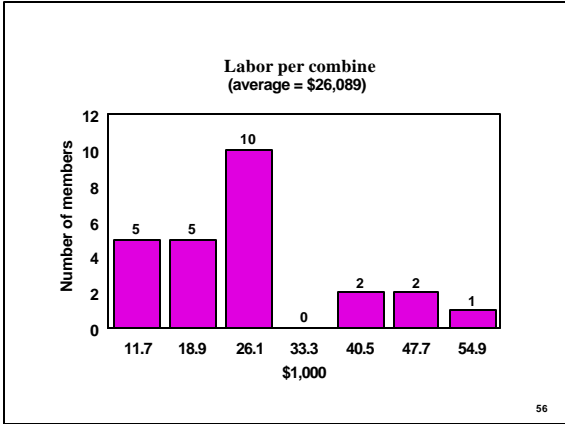
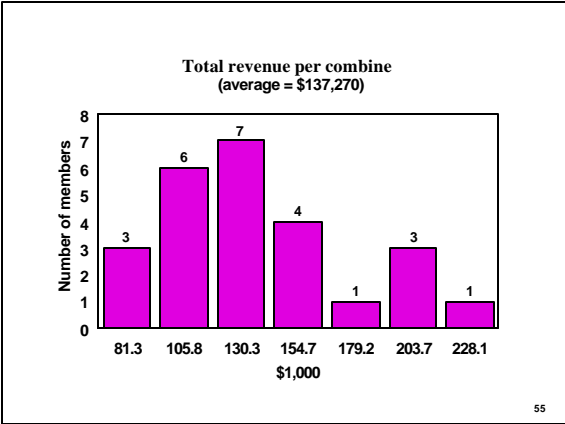


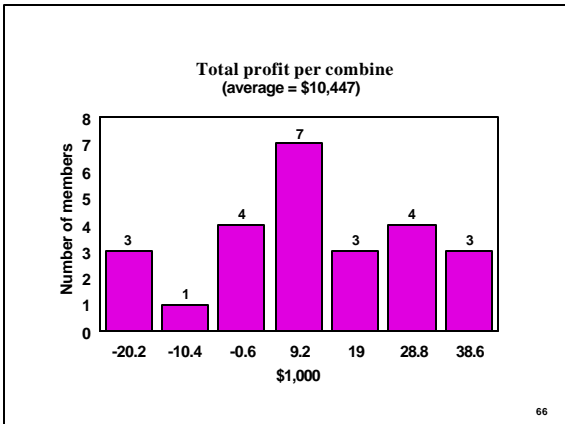
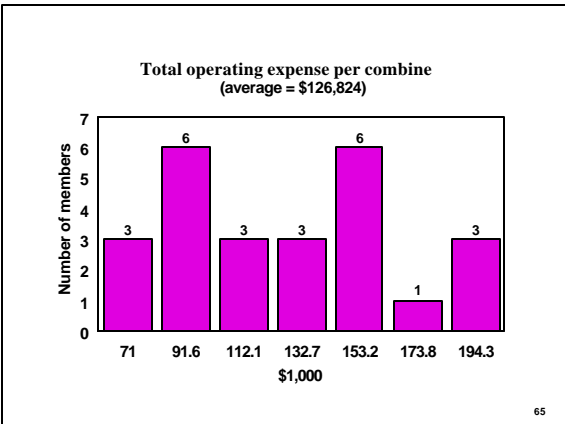
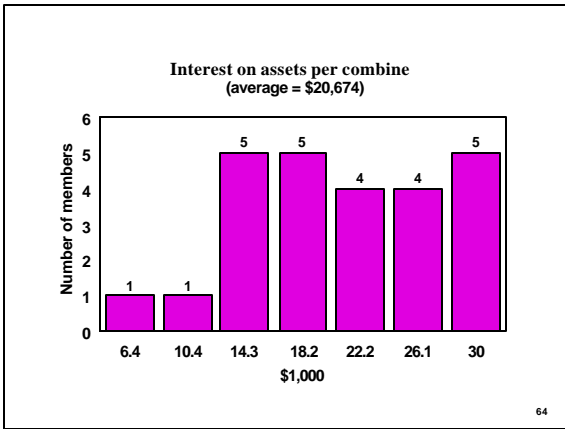
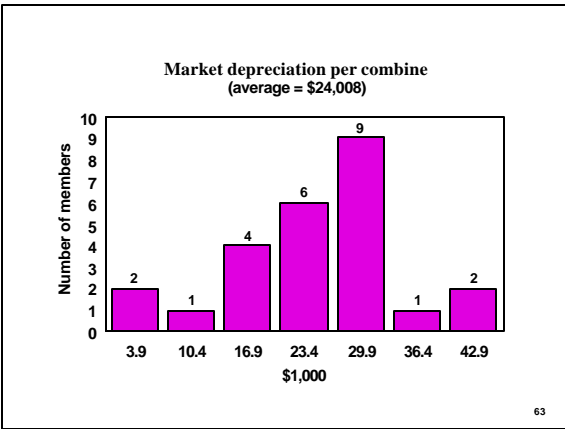
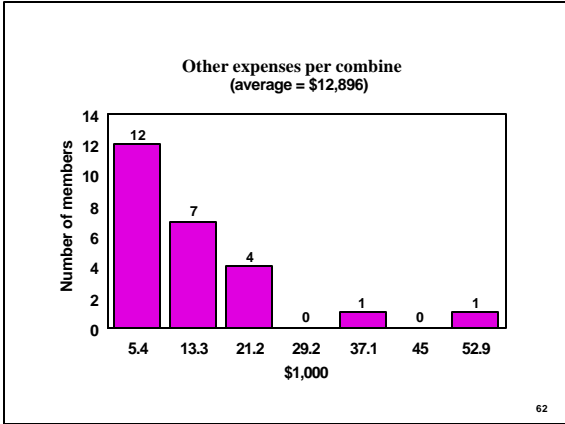
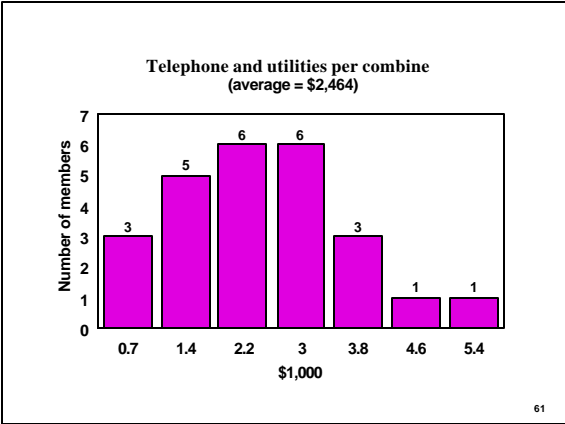
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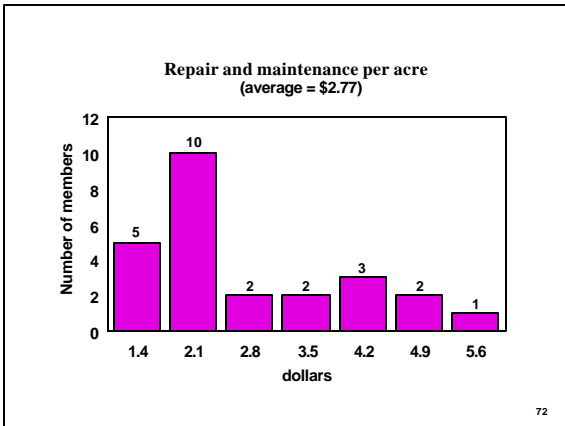
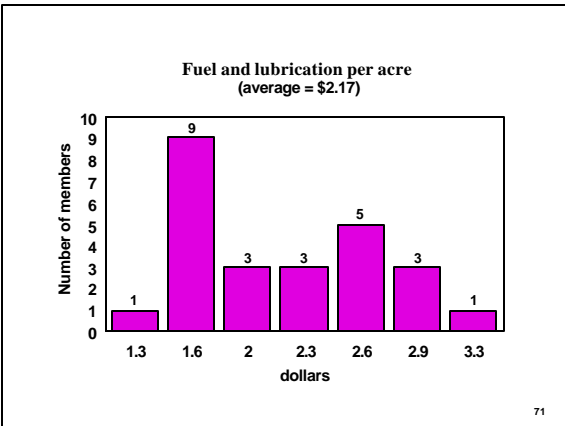
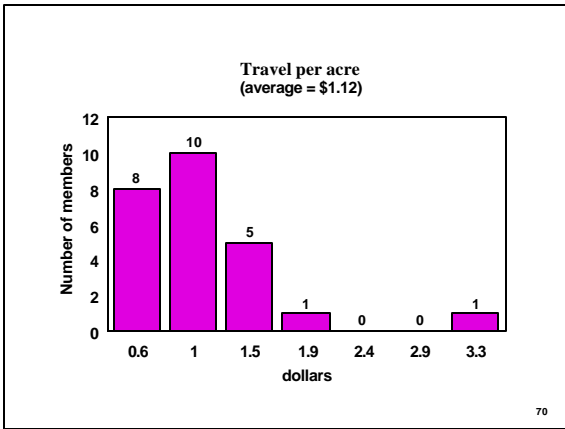
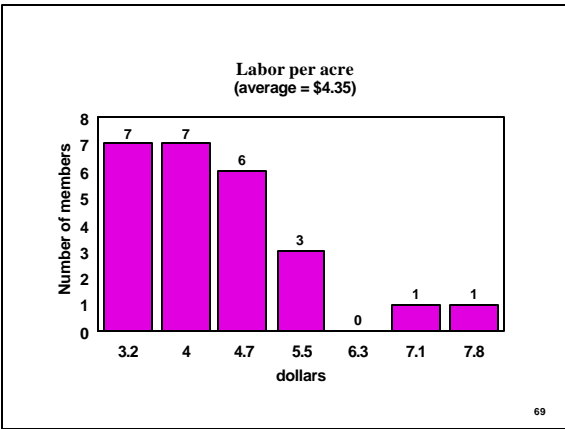
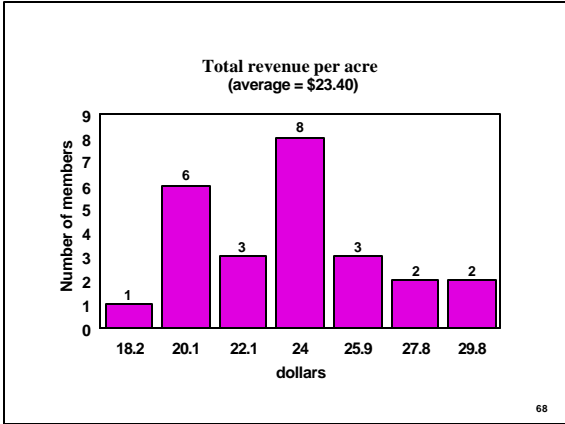
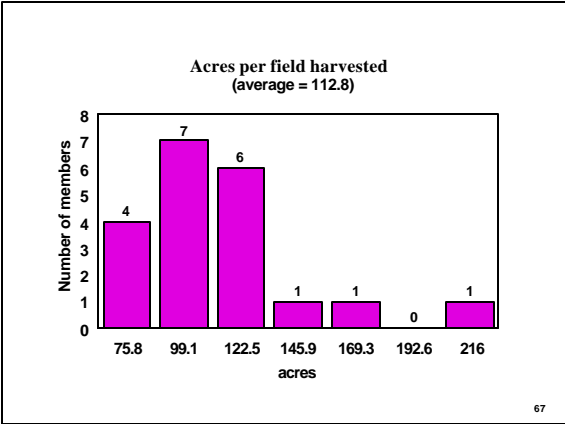
% other equipment is of (combines+other equipment)
(average = 39.5%)

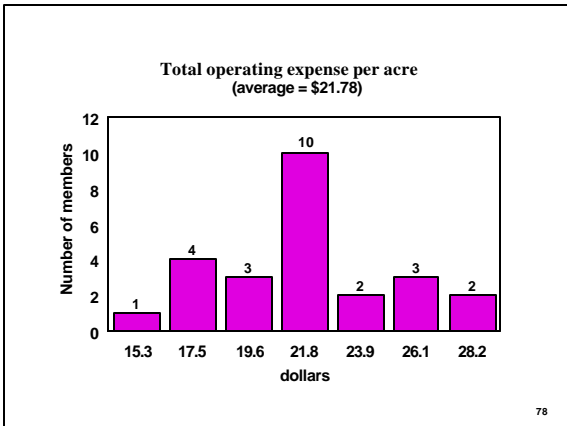
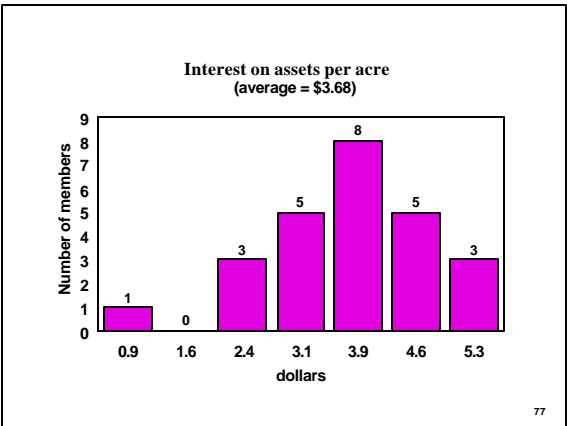
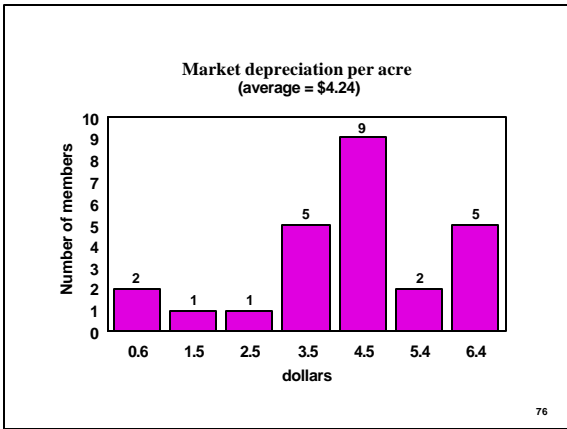
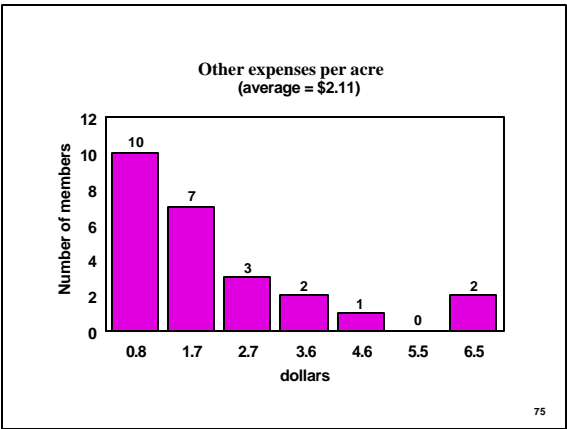
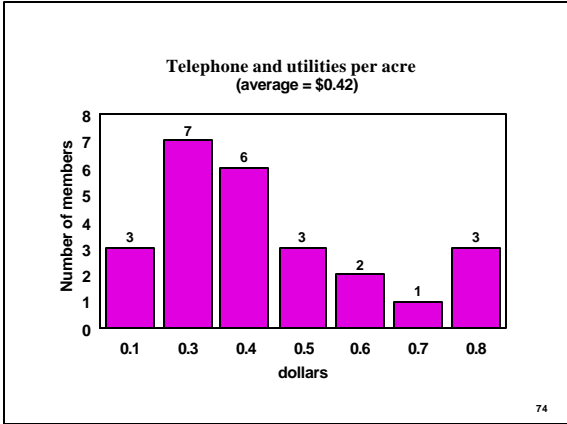
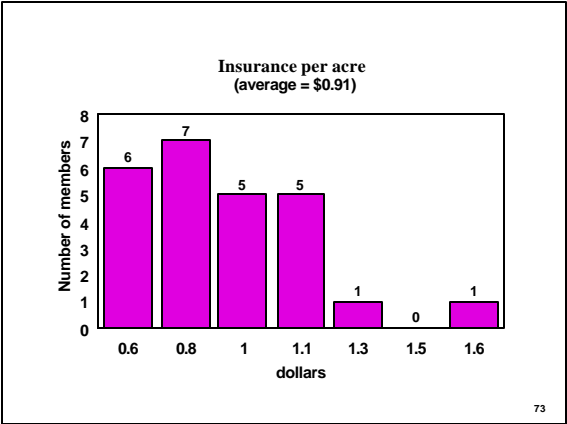


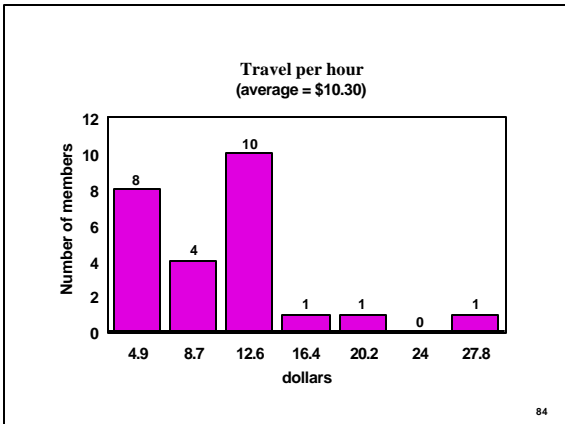
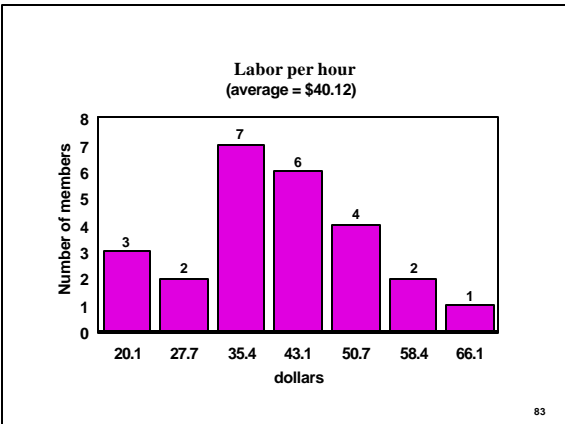
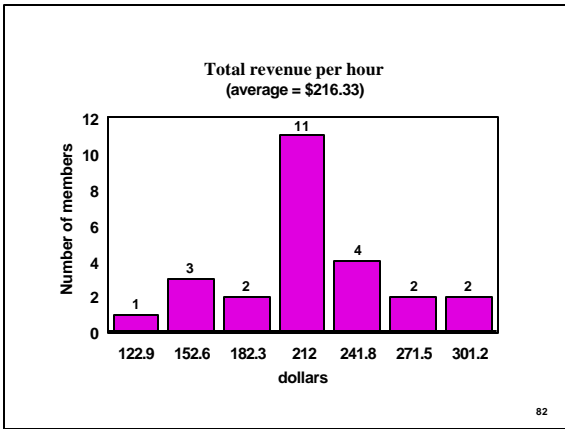
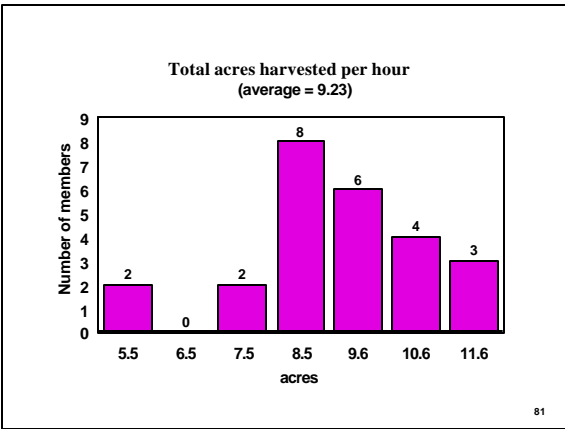
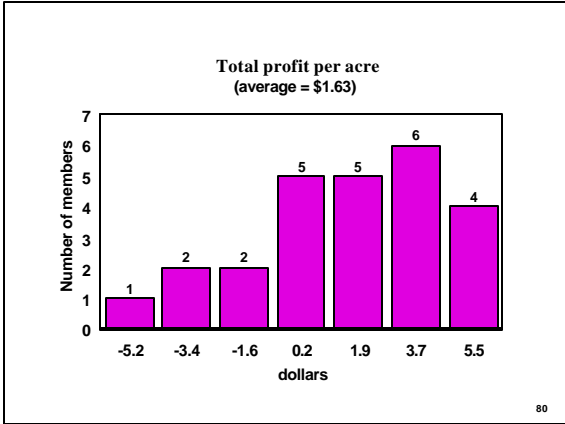
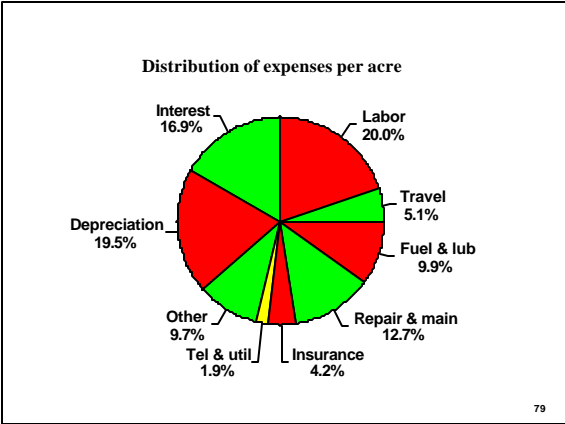
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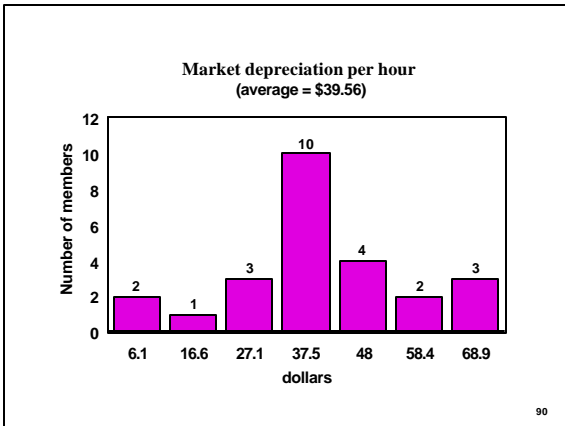
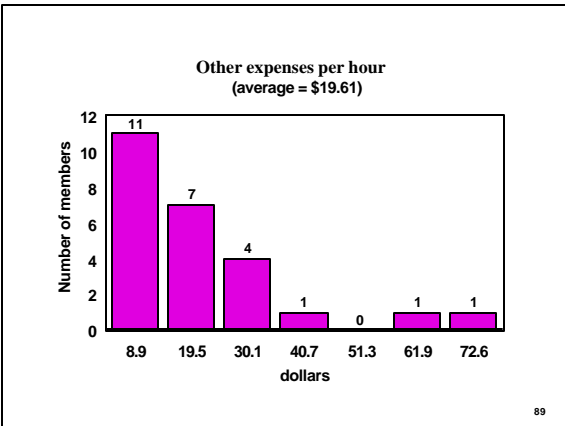
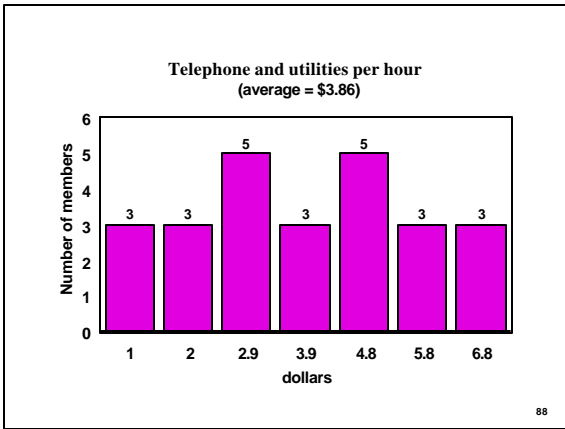
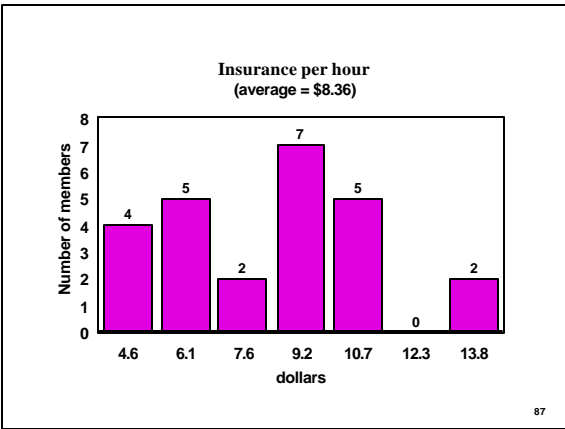
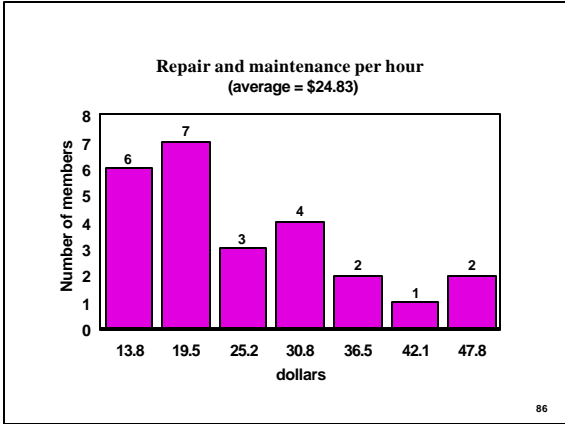
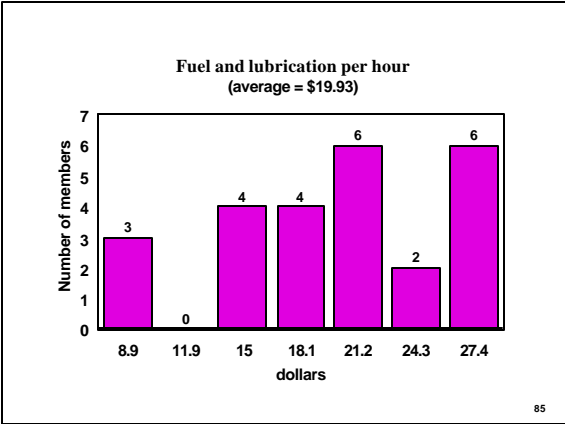


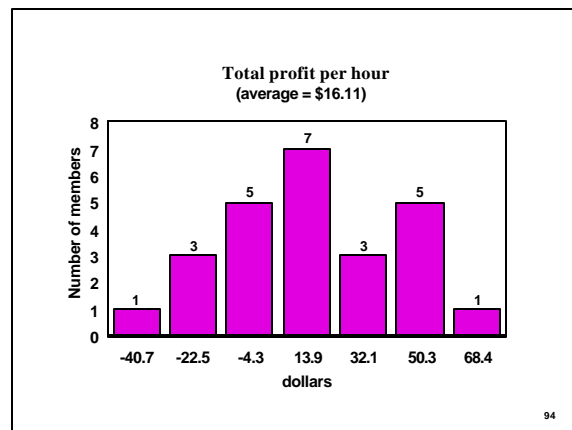
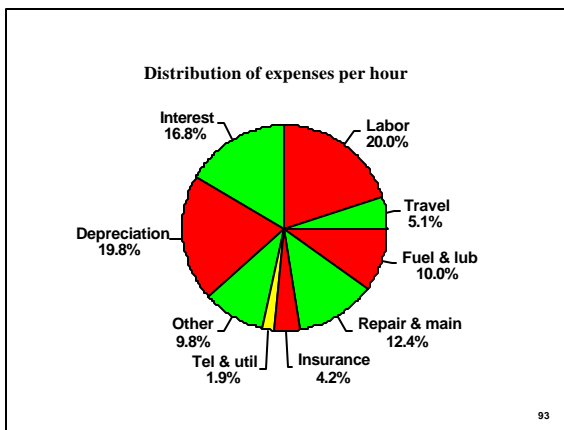
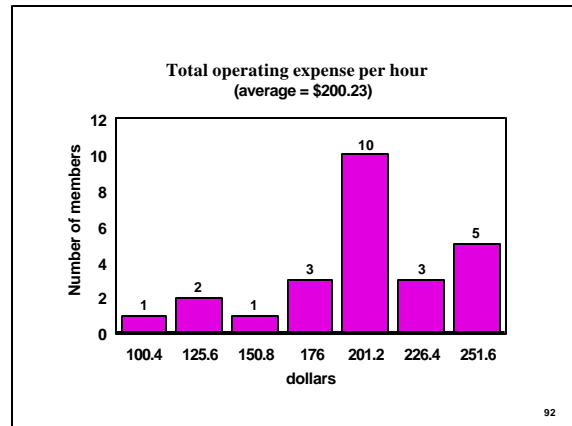
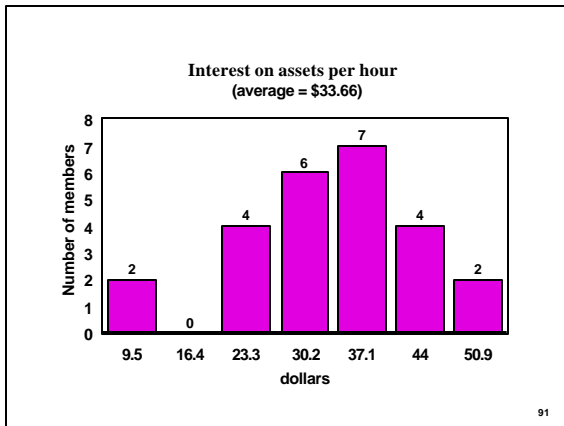












Profit and Financial Ratios

- Profit = revenue - expense
- Debt-to-assets (D/A) = $\frac{\text{total liabilities}}{\text{total assets}}$
- Return on Assets (ROA) = $\frac{\text{profit} + \text{interest}}{\text{average assets}}$

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Financial Ratios

- Return on Equity from income statement (ROE — IS) = $\frac{\text{profit} + \text{interest on equity}}{\text{average equity}}$
- Return on Equity from balance sheet (ROE — BS) = $\frac{\text{change in equity}}{\text{beginning equity}}$

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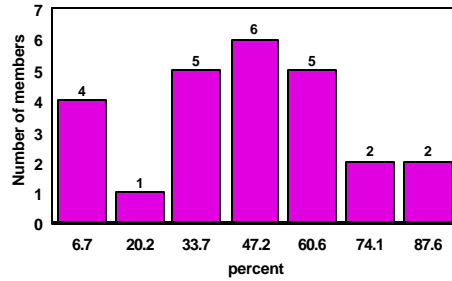
Expense Ratio

a measure of financial efficiency

- Expense Ratio (ER) = $\frac{\text{total expense}}{\text{total revenue}}$

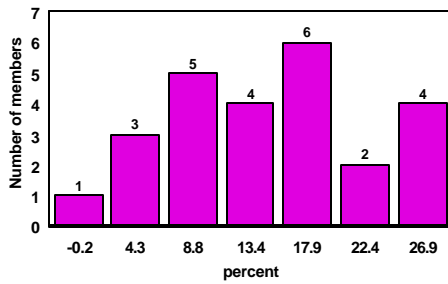
97

Debt-to-assets (end of year)
(average = 44.1%)



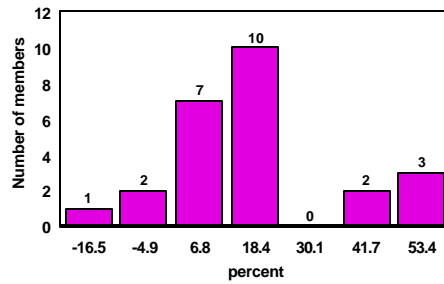
98

Return on assets
(average = 14.5%)



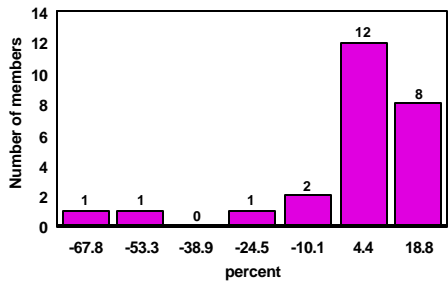
99

Return on equity from income statement (ROE - IS)
(average = 18.6%)



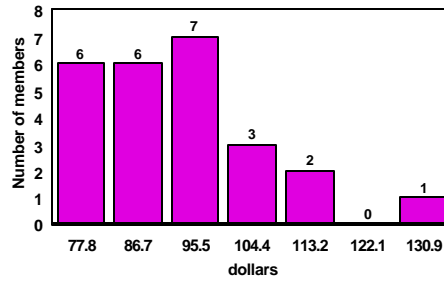
100

Return on equity from balance sheet (ROE - BS)
(average = 1.3%)

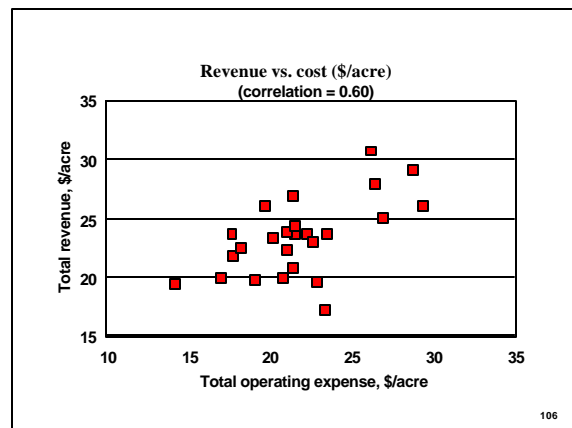
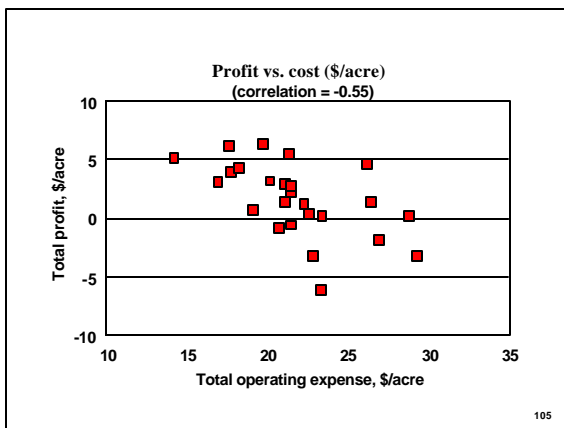
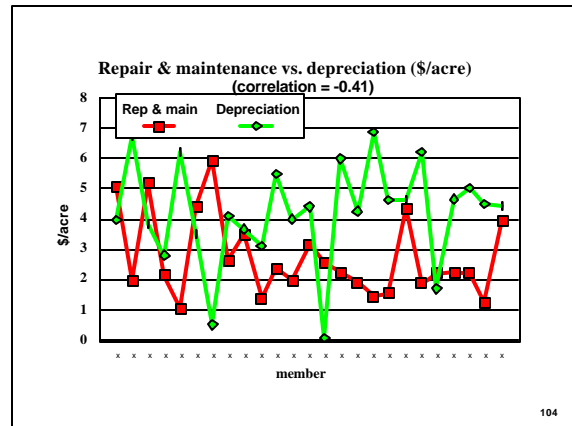
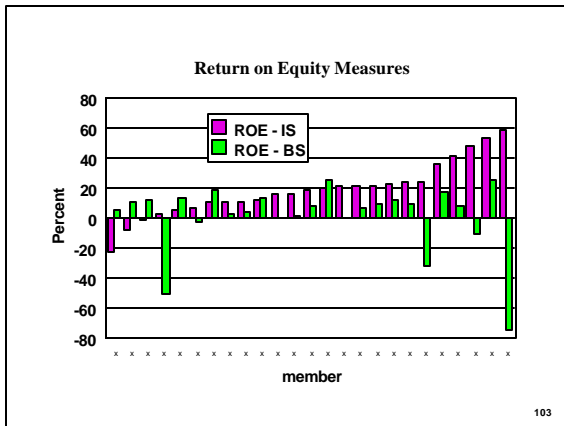


101

Expenses per \$100 revenue
(average = \$93.61)



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- ### Summary
- Considerable variability between firms
 - Cost control is important
 - Identify strengths & weaknesses of business
 - Improvement from 1997 to 1998
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