

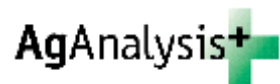
2000 Harvest Year Report

for USCHI's

Custom Harvester Analysis and Management Program (CHAMP)

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Background and Structure

At the urging of a number of 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 primary 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 its accuracy and relevance can improve over time. Besides immediately providing useful information to individual participants, this program could provide custom harvesting industry benchmarks and 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 USCHI's annual spring meeting, Dhuyvetter and Kastens present survey results to CHAMP and USCHI members and conduct short one-on-one consultations with individual CHAMP members. Historical CHAMP harvest reports and participation information are available by clicking on the CHAMP logo at www.aganalysisplus.com.

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 1997 - 1999 harvest years, K-State charged \$150 per CHAMP member annually. However, only \$75 was paid directly by the CHAMP member, with the balance (\$75) covered by USCHI. Through payment of \$8,700, John Deere has underwritten the fixed costs associated with the CHAMP program for the

2000 harvest year. For 2000, CHAMP member fees were \$225 each. USCHI covered \$75 of the \$225 – for CHAMP members who are also USCHI members. Although Deere and USCHI financially support CHAMP, to ensure confidentiality throughout, completed surveys are only viewed by Dhuyvetter and Kastens.

Survey Results

CHAMP members 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. For 2000, 22 surveys were returned (1999: 25; 1998: 25; 1997: 43). Although 22 responses may be inadequate for industry representation or certain intense statistical analyses, that sample is adequate to garner some understanding of custom harvesters' economic performance.

As with the previous CHAMP surveys and mail-in surveys in general, in this now-web-based survey there was plenty of room for error. Most surveys required one or more follow-up phone calls 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. However, because of CHAMP advisory committee efforts to improve previous years' surveys, and because many surveys are completed by repeat members (19 2000, 18 1999, and 21 1998 members were program

participants in the preceding year; 16 members participated in all four years), the judgement required of the analysts continues to diminish. Surveys from repeat members indicate there is a "learning curve" associated with filling out the forms, and that a better understanding of the economic principles of the business results, which should mean improved management abilities as well.

Throughout this report, references to a particular year mean that harvest year and are associated with the survey completed early in the calendar year 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 2000 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.

CHAMP members in 2000 were located in 6

states (1999, 6; 1998, 7; 1997, 10), with most (13) in Kansas. The average age of the “main persons in charge” was 43.8 years, which was an average of 36 people (because some of the 22 CHAMP members listed more than one person to be in charge). This average age compares to 44.9 in 1999, 45.4 in 1998, and 47.0 in 1997. These ages are somewhat lower than the average age of U.S. farmers, which is regularly asserted to be in the mid 50's.

Of the 22 2000 members, 3 operated as partnerships (2 of these were technically LLC's), 9 as corporations, and 10 as sole-proprietorships. Generally, firms appear well established, with an average number of years in business of 25.4 (1999 26.3, 1998 24.9, 1997 23.9).

Most (17 of 22) members indicated they typically run their combines one or two years. Not surprisingly, 12 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 majority (15 of 22) of members have sideline businesses. Farming/ranching was a sideline for 11 of the members, 10 were involved in trucking, and 3 had some other sideline business.

Twenty-one of 22 (95%) members typically pull mobile homes rather than stay in motels (1999, 96%, 1998 84%, 1997,79%). On average, 29.1% of the meals are from a restaurant rather than home-prepared (1999 34.0%, 1998 43.4%, 1997 38.4%).

On average, across the 36 “main persons in charge,” managers indicate they allocate 70.8% of their time to the custom harvesting business (1999 69.0%, 1998 73.1%). Although most

(58%) of the managers indicated they spent more than 70% of their time in their harvesting businesses, 28% were so-employed less than half time.

In 2000, harvesting firms spent 6.2 months in actual harvesting on average, with one firm spending 7.5 months. The number of customers serviced by a CHAMP member ranged from 15 to 70, and averaged 38.8 (1999 39.1, 1998 33.4).

At the harvest season peak, member harvesters employ 9.8 individuals on average (1999 11.4, 1998 8.5), with the most common number indicated to be between 6-7 people. Of the total season-peak individuals, 34.1% (1999 36.2%, 1998 31.3%) were family members. On average, the typical non-family employee stays with a harvester for 1.7 (1999 1.9, 1998 2.0) seasons, with the most frequent response being 2 seasons.

Eleven of 22 (1999 10 of 25; 1998 13 of 25) members split their machines up when harvesting. Over three-fourths (17) finance their combines through the dealer or manufacturer. With a minimum of 8.5% and a maximum of 11.0%, the average reported interest rate on loans in 2000 was 9.32% (1999 8.94%, 1998 8.9%).

Combine Information

The second page of the 2000 survey, the Combine Page, reports details about the combines used by CHAMP members – such as brand, model year, hours of use, and other descriptive features. In addition, start-of-year, purchase, sale, and end-of-year values of combines were also reported on this page. Information from those values provides an estimate of annual market depreciation, which

averaged 15.1% across the 76 combines listed by members where such calculations were appropriate (1999 16.1%).

John Deere made up 77.6% (1999 63.2%, 1998 67.4%, 1997 58%) of the 85 combines listed by members, with 22.4% (1999 34.6%, 1998 27.2%, 1997 37%) for Case-IH, and 0.0% for all other brands. Slightly more than half (50.6%) of the combines were of model year 2000. Over 76% were 1998 or newer combines. A large majority (89%; 1999 91%, 1998 90%, 1997 95%) of combines were owned rather than rented (11%) or leased (0%).

Of the 85 combines reported, 84.7 % (1999 84.2%, 1998 82.6%, 1997 82.0%) had chaff spreaders, 55.3% (1999 54.9%, 1998 37.0%, 1997 38.0%) had yield monitors, and 27.1% (1999 25.6%, 1998 15.2%, 1997 21.0%) had GPS-equipped yield monitors. Based on this small sample of combines, it appears that chaff spreader inclusion may have peaked but GPS-equipped yield monitor inclusion may still be edging upward.

The typical combine was used for 559 separator hours (1999 524, 1998 577, 1997 585) and had 1146 (1999 975, 1998 1106, 1997 1156) hours on the separator hourmeter at the end of 2000 or when it was traded if traded during the year. However, usage rates were quite disperse, 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. For example, some harvesters might use rented combines for short periods of peak harvesting activity.

Comparing individual and average usage rates

and end of season hours across years 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 much larger than the typical number of combines simultaneously operated by that harvester.

In 2000, on average across the 22 CHAMP members, the number of combines simultaneously operated was 3.6 (1999 4.2, 1998 3.2, 1997 3.5). Using the total combine separator hours accumulated during 2000 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 22 members) in 2000 was 577 separator hours (1999 603, 1998 641, 1997 581), and ranged from 377 to 787.

Average acres harvested per combine in 2000 was 5,969, which was 12% more than in 1999 and 2% more than in 1998 (1999 5311, 1998 5852, 1997 5852). Closely related to hours per combine and acres per combine is acres per hour, which was a record 10.45 in 2000 (1999 8.83, 1998 9.23, 1997 9.51). Likely, poor-crop-yield- and good-weather-induced faster travel in 2000 (compared to mud problems in 1999) resulted in this large increase in harvest efficiency over previous years and especially over 1999. As always, wide variability across members prevails, with 1 averaging around 4 acres per hour and two in the 12-13 range. Of course, these differences are also partly due to the types of crops harvested – some crops naturally require slower travel speeds.

Platform Information

The third page of the CHAMP survey sought information on the “additional” combine headers/platforms used by harvesters (one standard grain platform was included with each combine on the Combine Page). Average annual depreciation on grain platforms was 7.4% (1999 9.1%).

Of the 85 combines that tallied more than zero hours, 50.6% had flex heads (1999 51.7%, 1998 40.2%), 67.1% (1999 61.7%, 1998 70.7%) had cornheads, 0% (1999 13.3%, 1998 15.7%) had draper platforms, 28.2% (1999 25.0%, 1998 30.4%) had row crop heads, and 68.2% (1999 55.8%, 1998 70.7%) had pickup heads.

Because the total number of operations involved in CHAMP is not great, coupled with the fact that operators are probably consistent across years in 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 across years.

Trucks and Supporting Equipment

The fourth page of the 2000 survey, the Non-combine Harvesting Equipment Page, reports details about grain trucks, trailers, tractors, grain carts, service vehicles, and other supporting equipment used by CHAMP members. At an average model year of 1989.7 (1988.4 in 1999 and 1987.4 in 1998), the 102 grain trucks reported by members were much older than the combines. Tandem-axle trucks made up 61% (1999 50%, 1998 59%) of the 102, triple-axle trucks were 0%, and semis were 39% (1999 42%, 1998 41%). Members

owned 89% (1999 93%, 1998 91%) of their grain trucks as opposed to leasing or renting. On average, 19,589 miles (1999 17,766, 1998 16,308) were put on each truck during the 2000 harvest season. At the end of 2000 the average odometer reading was 513,162, which was above 1999’s 443,883 but below 1998’s 532,901. Ending mileage values suggest that many of the trucks had been at one time or are currently being used for over-the-road hauling.

Reported grain truck values were used to estimate market depreciation, which averaged 12.1% (1999 5.9%, 1998 5.2%) across the 91 trucks where those values were reported. Although trucks (12.1%) apparently depreciate more slowly than do combines (15.1%), trucks dropped in value much more sharply in 2000 than in earlier years. This sharp drop in truck value may be due in part to an excessive supply of trucks on the market – especially semis – wrought by the higher fuel prices in 2000.

Crops Harvested and Revenue Generated

The annual survey solicits information on 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, 2000 CHAMP members harvested 498,490 acres (1999 576,597, 1998 493,038, 1997 751,804). Small grains, defined as wheat, barley, durum, and oats, represented 350,340 acres (1999 387,280, 1998 364,654, 1997 547,131), or 70.0% (1999 67.2%, 1998 74.0%, 1997 72.8%) of the total acres harvested. At 334,987 acres,

wheat made up the majority (67.2%; 1999 63.4%; 1998 68.9%; 1997 68.9%) of all crop acres harvested. Although wheat acres comprised 67.2% of total harvested crop acres, the revenue share for wheat, at 58.3% (1999 57.0%, 1998 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, milo, sunflowers, and other crops. But Montana had the most barley and canola, and South Dakota had the most soybeans. The strong Kansas showing for fall crops is likely partly due to the large number of CHAMP members located in Kansas in 2000. Besides the usual crops of wheat, corn, milo, soybeans, barley, sunflowers, and canola, many other crops were harvested as well. For example, pinto beans, peas, edible beans, alfalfa seed, popcorn, and food corn were each listed as being harvested by at least one firm.

Within 2000, or across 2000 and previous years, acres per field by crop did not reveal any obviously explainable differences. Acres per field by state is a little more interesting, with Canada standing out as having the largest fields at 283 acres. Across all member reports the average field size was 111.3 acres (1999 113.3, 1998 94.3).

Over all member reports for all crops, the average revenue received per harvested acre was \$21.65 (1999 \$23.03, 1998 \$25.65). Because of the higher yields associated with corn, especially irrigated corn, that crop generates the highest revenue per acre (\$29.97; 1999 \$31.32; 1998 \$39.79). The corn results are somewhat reversed when revenue is

depicted on a per bushel basis. Corn, at only 26¢/bu (1999 27¢, 1998 28¢/bu), is the lowest revenue crop, whereas wheat, soybeans, sunflowers, canola, and oats each generate revenue above 50¢/bu. The average revenue across all crops was 52.7¢/bu.

Averaged across the crops, and adjusted to hauling 100% of the crop if something other than 100% had been hauled by the harvester, trucking revenue made up 22.9% (1999 28.1%, 1998 24.6%) of total harvesting revenue. At 33%, the trucking part was highest for corn – which should not be too surprising given that corn is a relatively high-yielding crop. Most harvested grain is also hauled away from the fields by the harvesters. Across all member reports, the average percent of harvested grain hauled by the harvester was 90.7% (1999 90.3%, 1998 91.7%).

Where hauling destination percent was indicated, among all bushels of all crops, 28.1% (1999 24.0%, 1998 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, barley, canola, and other involved the greatest portions hauled to the farm. When segregated by state, northern states typically have greater portions hauled to the farm than do states such as Kansas and Oklahoma. That seems reasonable in that northern states rely more on on-farm storage than do states closer to export terminals (75% of grain storage capacity in ND is on-farm versus 33% in KS). 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 72.9% (1999 69.9%, 1998 73.1%) small grains, for 4 firms, more than half of the acres harvested involve crops that tend to be fall crops (not small grains), while 2 firms harvest over 80% small grains.

General Financial Information

For the most part, financial information was taken from the Cash Flow Page and Balance Sheet, but asset values 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.

In 2000, the value of unpaid labor was much better reported than in previous years. A few follow-up phone calls rounded out that series so that no analyst judgement calls were required for that category. Clearly, the economic concept that operator labor, even when not directly compensated by salary, has an opportunity cost is much better understood than at CHAMP's onset.

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 9.32% (1999 8.94%) of the value of all custom harvesting assets. This was the average interest rate reported by members. As in 1999 and 1998, we did not impute an interest charge on operating expenses 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 over time due to usage. 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. For example, based on 1997 responses providing market and tax basis (book) machinery values, the typical market to book ratio was 2.2 (would be 1.0 if economic and tax depreciation were equal).

For this analysis, annual market depreciation was taken to be the change in combine, platforms, and supporting equipment values from the appropriate pages of the survey. For each equipment item, the end-of-year value (or when it was sold or traded) was subtracted from the beginning-of-year (or when purchased) value to derive its depreciation value. Significant value-enhancing improvements (such as adding a rear-wheel drive to a combine) were treated as purchases to an existing combine.

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
- + interest on assets (assigned)
- = 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, on average, in the long run. That is, a return to all assets (9.32%) has already been assigned. Thus, profit is the return above "all costs plus the 9.32% 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. This provides important comparison values for an individual member. Departures from survey averages 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 have a comparative advantage.

Financial Ratios

Financial ratios can provide useful measures for comparing a member's financial situation with that of the group. Financial ratios rely mostly 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. However, firms with high D/A 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. The interest that is added back in the numerator of ROA is the amount that had been assigned in the first place, which was 9.32% times average value of assets. Interest is added back to profits because it is a return to invested capital – whether that investment is made by the equity holder or the lender. Because of adding back interest, ROA can be used to compare firms with different debt loads. Here, the assets are average annual assets, including asset value information during the year (from the Combine, Platform, and Non-combine Pages). That is, formulas were developed to properly handle equipment owned only part of the year.

Return on equity from the income statement (ROE – IS) is calculated as {profit + interest on equity, not on total assets} divided by some measure of equity or net worth, usually beginning equity and sometimes average equity (here, we use average equity because that is what we work with for imputing interest). 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 CHAMP member. The example firm (Happy Harvester) has lower-valued combines and trucks (other equipment), hence lower depreciation, than the average member, but somewhat higher repair & maintenance costs. At 4,733 acres harvested and 514 separator hours per combine, this firm covers less ground in less time than the average member, which had 5,969 acres and 577 hours per combine. Also, at 9.21 acres per hour, it was less efficient by that measure than the average firm at 10.45. Overall, at \$0.07/acre, this firm had higher than average profit, which was -\$2.11/acre.

The higher profit earned by the example firm is reflected in the Return on Assets and Return on Equity measures, which are each somewhat higher than the same measures for the average member.

On average, members have \$105,234 invested in each combine they operate, \$24,837 in additional platforms, and \$97,926 in supporting equipment for each combine they operate. On average, supporting equipment is valued at 75.7% of the combined value of combines and platforms, or 42.3% of all 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.

The average profit per acre was -\$2.11 in 2000. This compares with -\$1.51 in 1999, \$1.63 in 1998, and -\$0.30 in 1997. Interestingly, these three values average close to zero, which is what is expected in the long run. It is important to note that the difference between \$1.63 (1998) and -\$1.51 (1999) or -\$2.11 (2000) reflects large differences in how 1999 was perceived by harvesters compared to 1999 or 2000.

From the cost side, it was chiefly depreciation that was the culprit in 1999 – principally because harvesters were not able to cover as many acres per machine. In particular, depreciation was 33% higher (\$1.40/acre higher) in 1999 than in 1998. But, revenue was also off \$2.62/acre from 1998, presumably due to lower crop yields. Due in part to 14% higher labor costs and 52% higher fuel costs per separator hour in 2000 than in 1999, total costs (\$241/hour) were substantially higher in 2000 than in 1999 (\$210). Yet, because of increased travel speeds due to poor crops, costs per acre were actually lower by \$0.69 (3% lower). Of course, the relatively poor yields again led to reduced revenue per acre in 2000 (\$21.38) over 1999 (\$23.01). All in all, 2000 will probably go down as another “bad” year for custom harvesters.

Two “bad” years in a row have degraded harvesting firms’ equity positions. Average debt-to-assets ratios have risen to 45.1% from 39.9% in 1999.

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 -0.31, implying that as one measure rises the other tends to fall (1999 -0.12, 1998 -0.41).

Another notable relationship is that between cost per acre and profit per acre, which displays a correlation of -0.76 (1999 -0.69, 1998 -0.55). Clearly, lower costs lead to higher profits in a 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 vs. cost per acre shows that firms charging higher custom rates likely do so because they have higher costs. That is, they probably are harvesting crops that cost more to harvest. 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 more market determined, whereas costs are determined more by firm management.

Two other relationships of note are the positive relationship (correlation = 0.30) between profit and intensity of combine use (acres/combine) and the negative relationship (correlation = -0.30) between profit and percent of small grains harvested. The negative relationship between small grains harvesting and profitability was somewhat a surprise. In earlier years, this relationship has been positive.

Summary

Although 2000 was again a tough year for CHAMP members economically, there is considerable variability in the profitability of harvesters and 9 of 22 members were still profitable. Additionally, CHAMP members are

displaying an increased willingness to consider innovative ways to enhance profitability – especially regarding machinery efficiency. For example, in 2000, 4 of 22 members rented combine(s) out to other individuals. On average, each of these 4 firms collected rent on 537 separator hours of combine time.

Much of the opportunity for individual firms to increase profitability is in the area of cost control. However, to reduce costs it is imperative to know what the strengths and weaknesses of each 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 multiple years, 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.

Questions about the CHAMP program may be directed to:

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**Custom Harvester Analysis and Management Program (CHAMP)
2000 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 | 3.59 | ---- | ---- | ---- | ---- | ---- | ---- |
| Value of Combines | \$285,000 | \$391,113 | \$95,000 | \$105,234 | \$20.07 | \$17.90 | \$184.94 | \$186.71 |
| Value of Platforms | \$90,000 | \$97,237 | \$30,000 | \$24,837 | \$6.34 | \$3.97 | \$58.40 | \$41.81 |
| Value of Other Equipment | \$205,000 | \$353,015 | \$68,333 | \$97,926 | \$14.44 | \$16.24 | \$133.03 | \$170.26 |
| Value of Other Assets | \$67,000 | \$96,317 | \$22,333 | \$25,500 | \$4.72 | \$4.25 | \$43.48 | \$44.20 |
| Total Assets | \$647,000 | \$937,681 | \$215,667 | \$253,497 | \$45.56 | \$42.35 | \$419.86 | \$442.97 |
| Total Acres Harvested | 14,200 | 22,659 | 4,733 | 5,969 | 1.0 | 1.0 | 9.21 | 10.45 |
| Small Grains Percent | 72.0 | 72.9 | ---- | ---- | ---- | ---- | ---- | ---- |
| Total Fields Harvested | 125 | 185 | 43.3 | 56.9 | 95.0 | 111.3 | ---- | ---- |
| Total Separator Hours in 1999 | 1,541 | 2,158 | 514 | 577 | 0.109 | 0.101 | 1.0 | 1.0 |
| INCOME AND EXPENSE | | | | | | | | |
| Combine & Truck Revenue | \$330,150 | \$471,856 | ---- | ---- | ---- | ---- | ---- | ---- |
| Other Revenue | \$500 | \$16,754 | ---- | ---- | ---- | ---- | ---- | ---- |
| Total Revenue | \$330,650 | \$488,610 | \$110,217 | \$128,812 | \$23.29 | \$21.38 | \$214.57 | \$224.24 |
| Labor (paid and unpaid) | \$60,000 | \$107,087 | \$20,000 | \$28,785 | \$4.23 | \$4.92 | \$38.94 | \$49.73 |
| Travel | \$13,500 | \$24,308 | \$4,500 | \$7,051 | \$0.95 | \$1.20 | \$8.76 | \$12.26 |
| Fuel and Lubrication | \$26,350 | \$64,603 | \$8,783 | \$17,000 | \$1.86 | \$2.85 | \$17.10 | \$29.39 |
| Repair and Maintenance | \$46,000 | \$50,344 | \$15,333 | \$13,403 | \$3.24 | \$2.33 | \$29.85 | \$22.93 |
| Insurance | \$14,000 | \$22,845 | \$4,667 | \$6,175 | \$0.99 | \$1.04 | \$9.09 | \$10.71 |
| Telephone and Utilities | \$5,000 | \$9,883 | \$1,667 | \$2,569 | \$0.35 | \$0.43 | \$3.24 | \$4.38 |
| Other Expenses | \$27,500 | \$42,282 | \$9,167 | \$10,508 | \$1.94 | \$1.73 | \$17.85 | \$18.01 |
| Market Depreciation | \$77,000 | \$121,315 | \$25,667 | \$30,304 | \$5.42 | \$5.03 | \$49.97 | \$52.56 |
| Interest on Assets (assigned) | \$60,274 | \$87,354 | \$20,091 | \$23,616 | \$4.24 | \$3.95 | \$39.11 | \$41.27 |
| Total Expense | \$329,624 | \$530,019 | \$109,875 | \$139,410 | \$23.21 | \$23.48 | \$213.90 | \$241.24 |
| Total Operating Profit | \$1,026 | (\$41,409) | \$342 | (\$10,599) | \$0.07 | (\$2.11) | \$0.67 | (\$17.00) |
| Debt-to-Asset Ratio (end of year) | 45.0% | 45.1% | | | | | | |
| Return on Assets | 9.5% | 5.0% | | | | | | |
| Return on Equity (based on IS) | 9.6% | -3.6% | ==== Calculated as the operating profit + interest charged on equity divided by average equity. | | | | | |
| Return on Equity (based on BS) | 5.3% | 4.0% | ==== Calculated as the change in balance sheet equity divided by the beginning of year equity. | | | | | |
| Expense/\$100 Revenue | \$99.69 | \$110.69 | | | | | | |



* 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.

2000 Harvest Year Report for USCHI's Custom Harvester Analysis and Management Program (CHAMP)

Kevin Dhuyvetter and Terry Kastens
Agricultural Economists
AgAnalysis+ and
Kansas State University

email: kdhuynet@aganalysisplus.com
tkastens@aganalysisplus.com



2

CHAMP: Over the years . . .

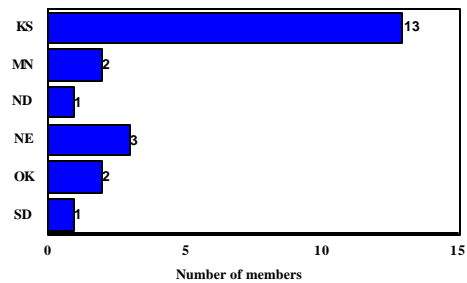
- Participation 97-00: 43, 25, 22
- Repeat members
 - 18 of 22 2000 members were in in 1999
 - 16 members have participated all 4 years
- Improved quality of returned surveys
 - Learning curve associated with filling out forms
 - Better understanding of economic principles

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

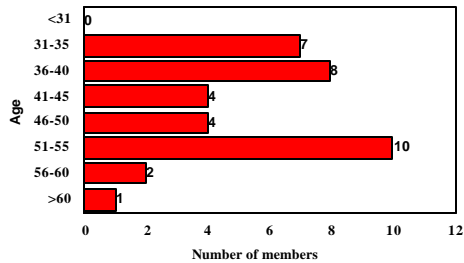
3

State where business is located



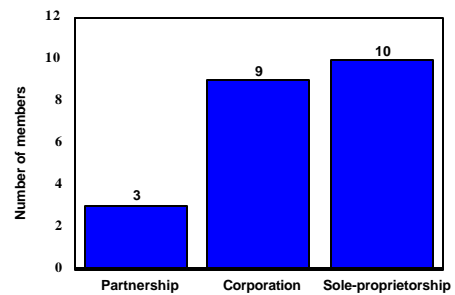
4

Age of main persons in charge
(average = 43.8)

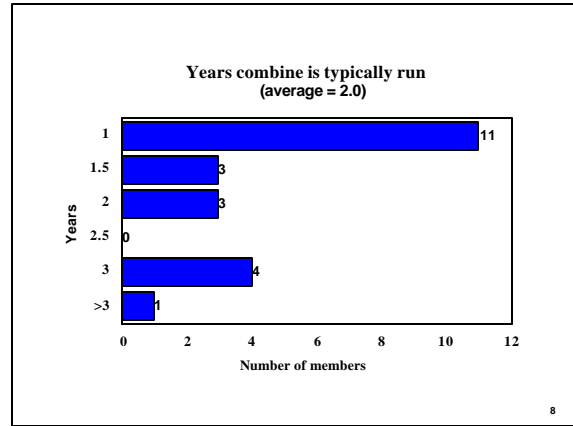
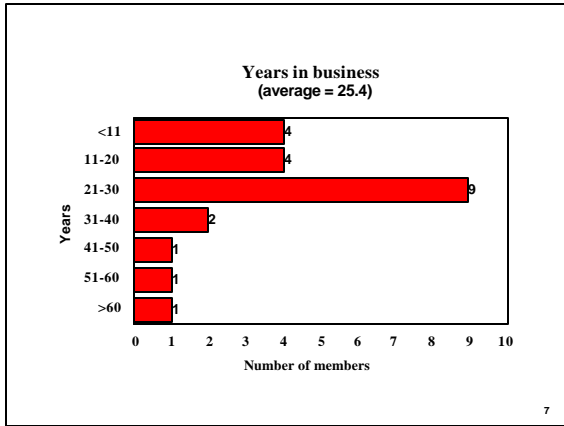


5

Business structure



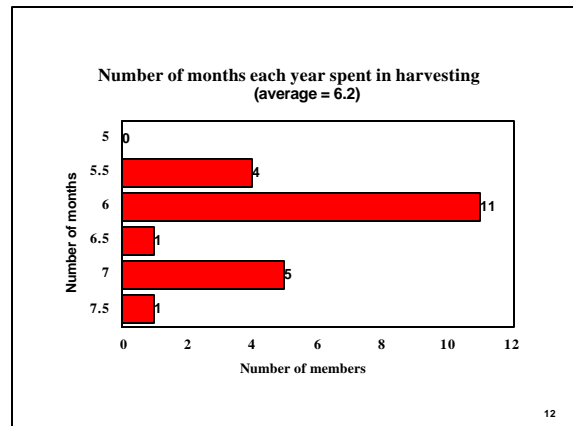
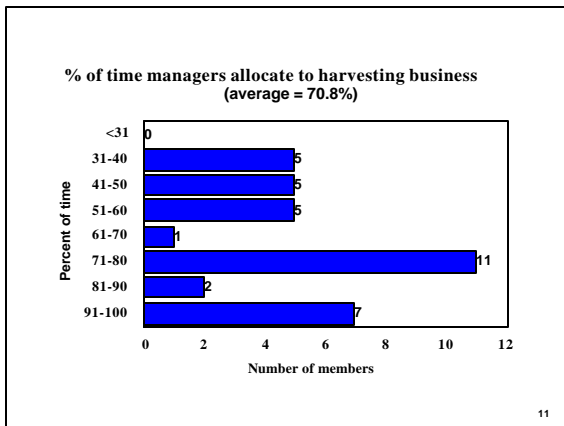
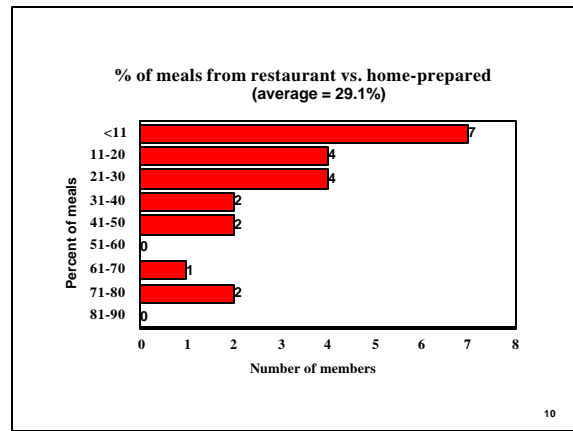
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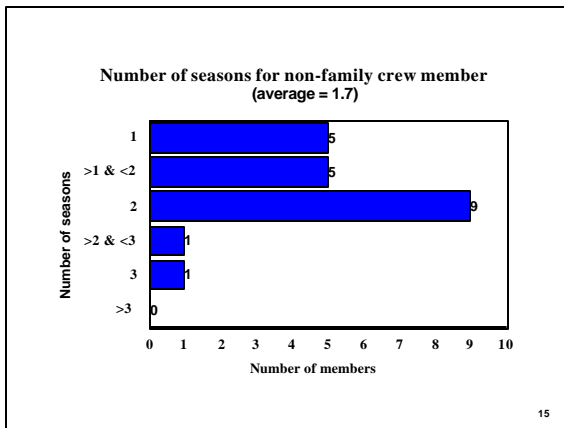
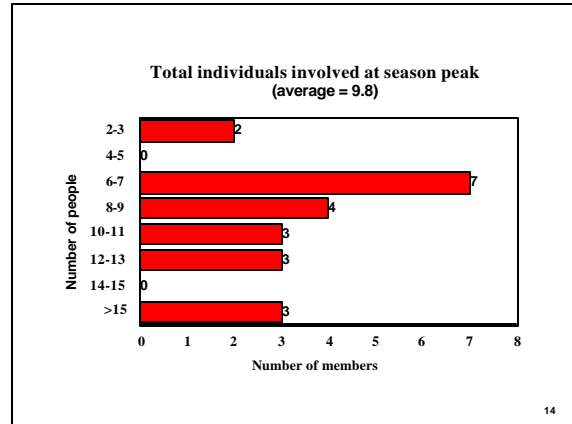
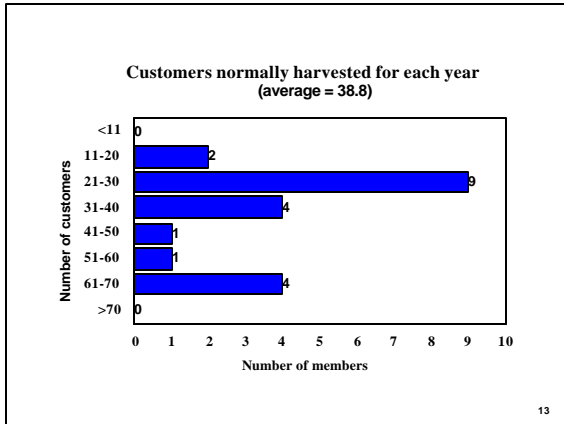


- ### Miscellaneous Information
- 12 run new combines
 - 9 run used combines
 - 1 runs new or used

 - 15 of 22 had sideline businesses
 - 11 involved in farming/ranching
 - 10 involved in trucking
 - 3 involved in other businesses

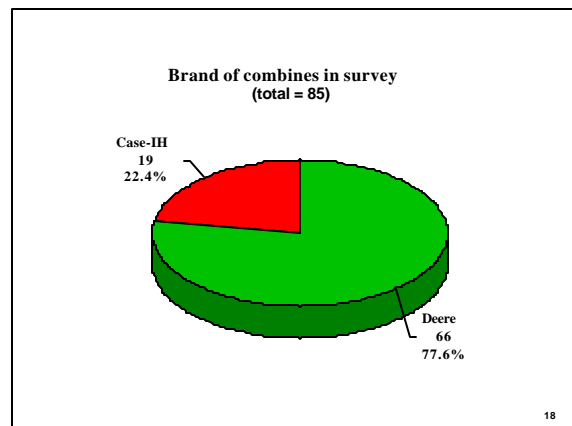
 - 95% pull mobile homes (vs. stay in motels)
- 9

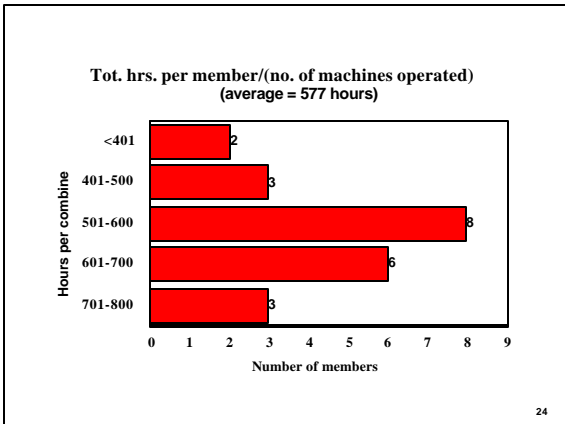
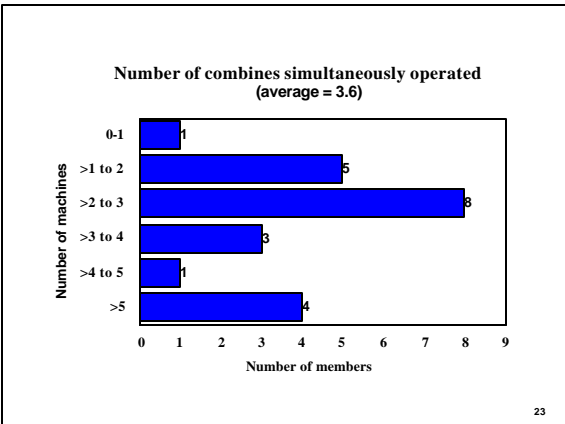
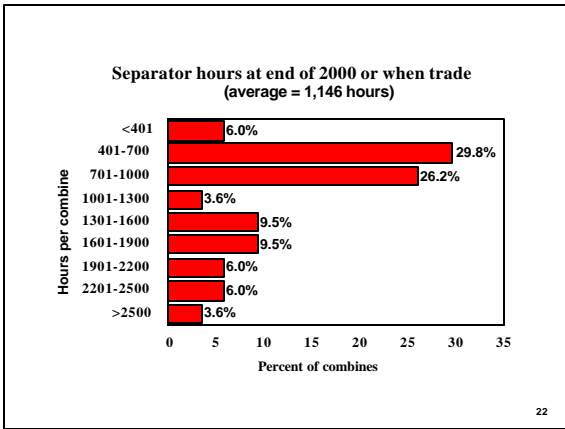
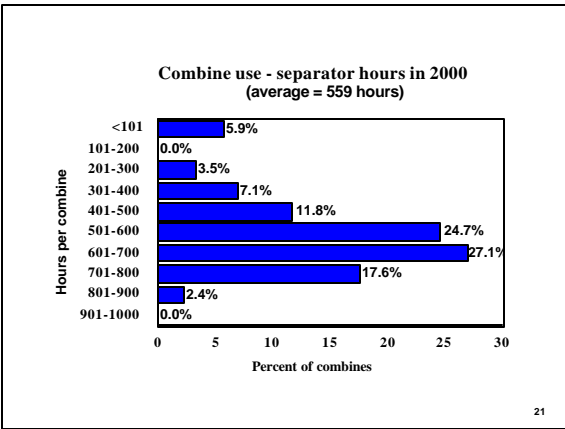
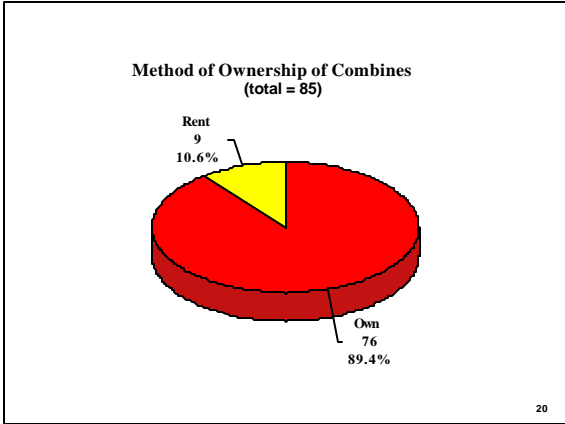
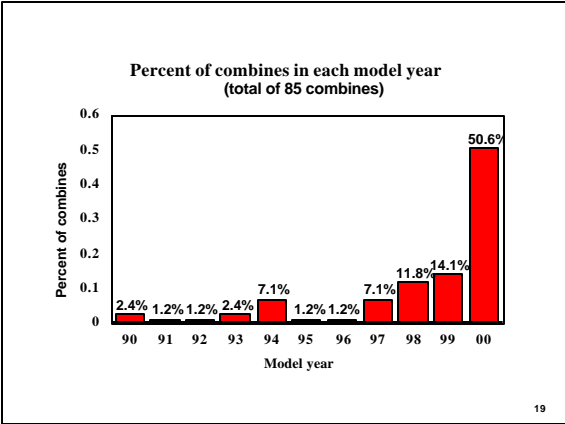


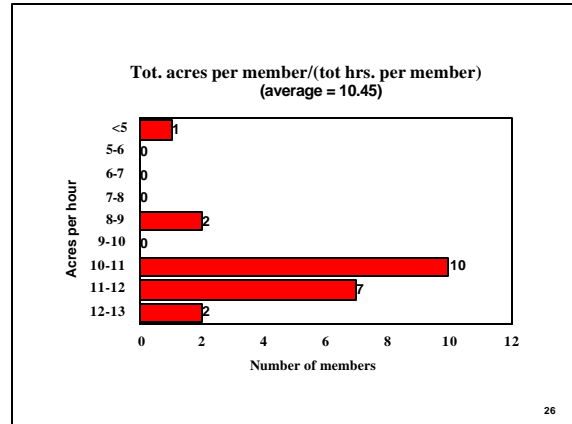
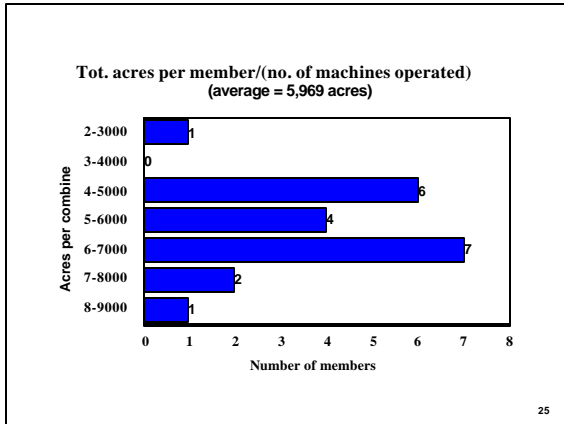


- ### More Miscellaneous Information
- 11 of 22 split their machines
 - 34.1% of season-peak employees are family
 - 17 of 22 finance their combines through dealers/manufacturers
 - Average interest rate was 9.32% ('99, 8.94%)
 - minimum = 8.5%
 - maximum = 11.0%
- 16

- ### Combine Information
- Brand
 - Model year
 - Own, lease, or rent
 - Headers
 - Hours used
 - Auxiliary equipment
 - Beginning and end-of-season values
 - Average depreciation 15.1% (76 total)
 - 1999 = 16.1%
- 17







Combine Headers & Equipment
(85 combines)

- Flex head 51.7% 26.9 ft.
- Corn head 67.1% 8.5 rows
- Row crop head 28.2% 8.5 rows
- Pickup 68.2%
- Draper/extra pltfm 0% 28.5 ft.
- Average depreciation 7.4% ('99 9.1%)

27

Combine Auxiliary Equipment
(85 combines)

- Chaff spreader 84.7% ('99 84.2%)
- Yield monitor 55.3% ('99 54.9%)
- GPS equipped 27.1% ('99 25.6)

28

Grain Truck Information (102 total)

- Average year 1989.7 ('99 1988.4)
- % Tandems 61% (0% triple)
- % Semis 39%
- % owned 89%
- Avg mi. in 2000 (92 total) 19,589 ('99 17,766)
- Avg. miles on truck at end of year
– (55 total): 513,162 ('99 443,883)
- Average depreciation 12.1% ('99 5.9%)

29

Revenue Information

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

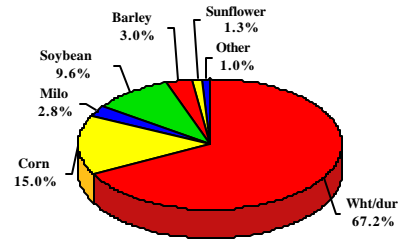
30

Acreage Information

- Total – 498,490 acres
- Small grains -- 350,340 acres (70.0%)
 - Wheat durum, barley, oats
- Other – 148,150 acres (30.0%)
 - Corn, soybeans, milo, sunflowers, canola, flax, peas, pinto beans, other edible beans, alfalfa seed, grass seed, popcorn, food corn

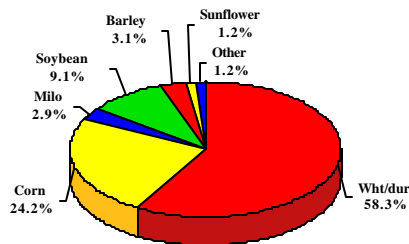
31

Distribution of acres by crop
(total acres = 498,490)



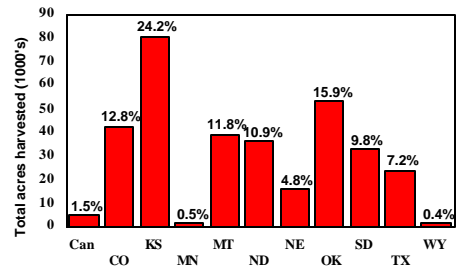
32

Distribution of revenue by crop
(total revenue = \$10,381,680)



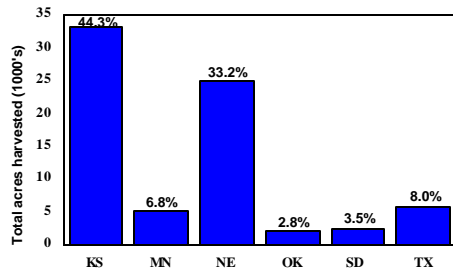
33

Acres of wheat by state
(total = 334,987)



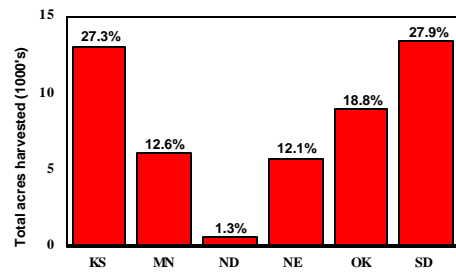
34

Acres of corn by state
(total = 74,909)

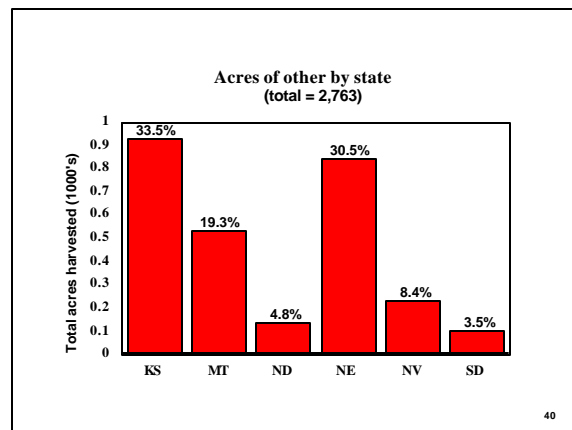
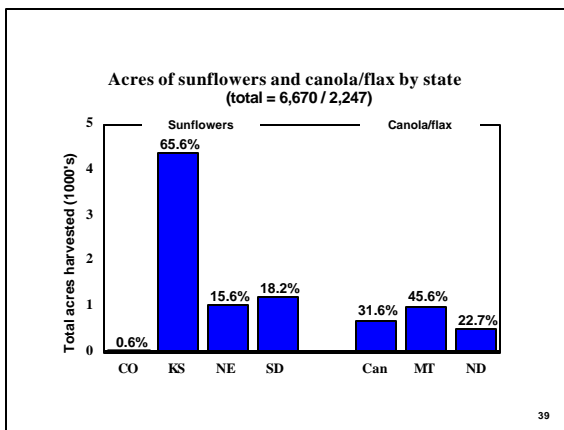
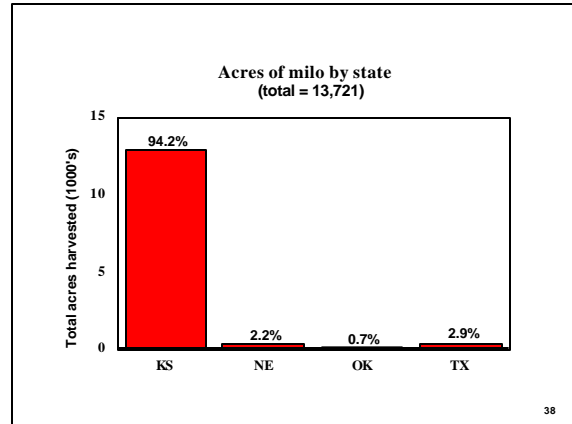
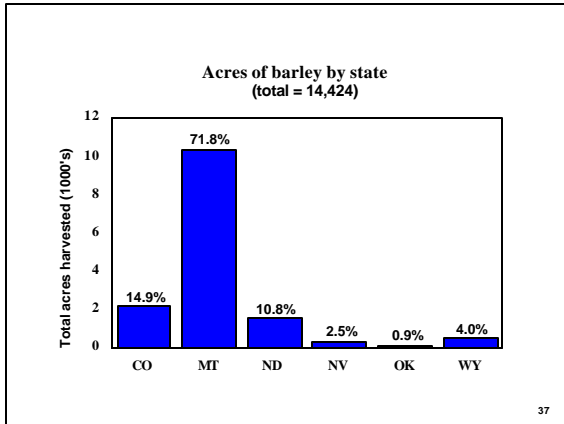


35

Acres of soybeans by state
(total = 48,071)



36

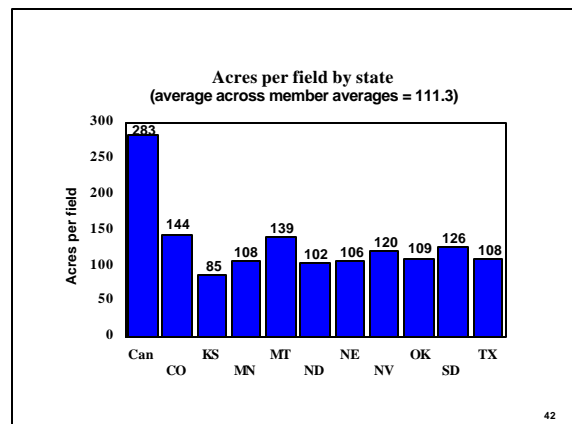


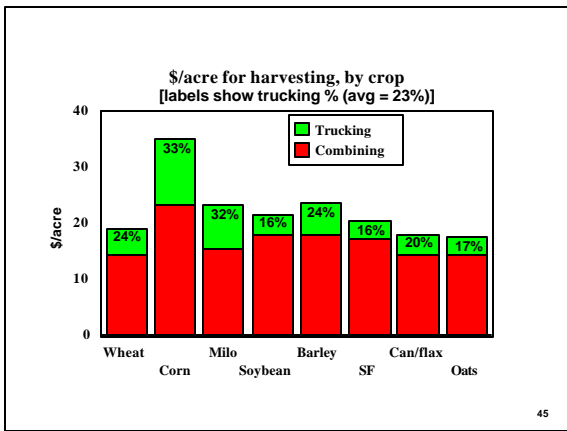
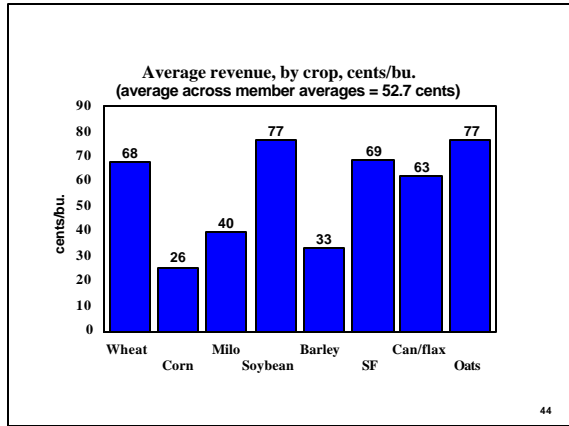
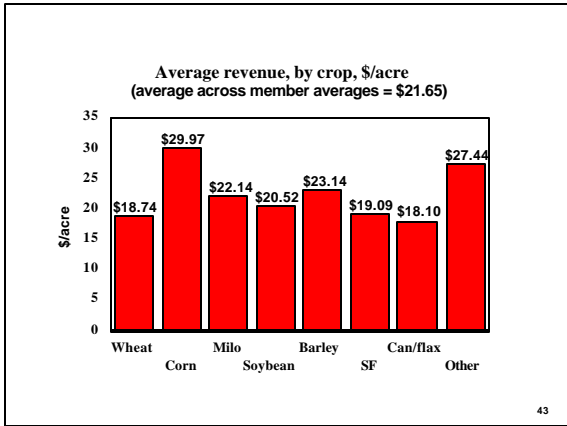
Acres per Field

- Wheat 120.2
- Corn 85.2
- Soybeans 110.8
- Barley 114.1
- Milo 75.0
- Sunflowers 75.4
- Canola/flax 118.5
- Other 66.7

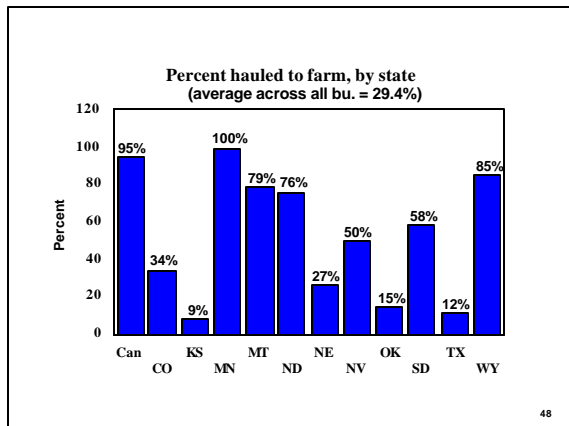
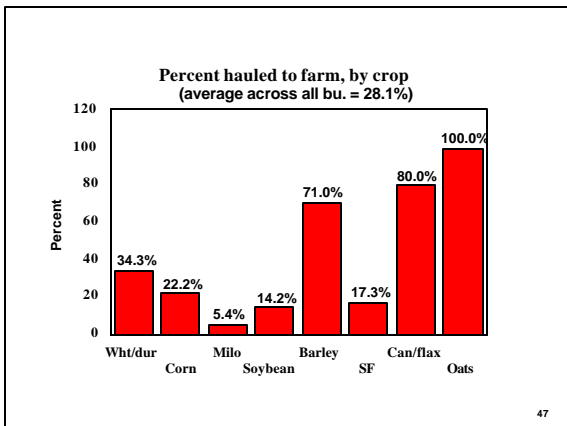
- Average across all member reports = 111.3

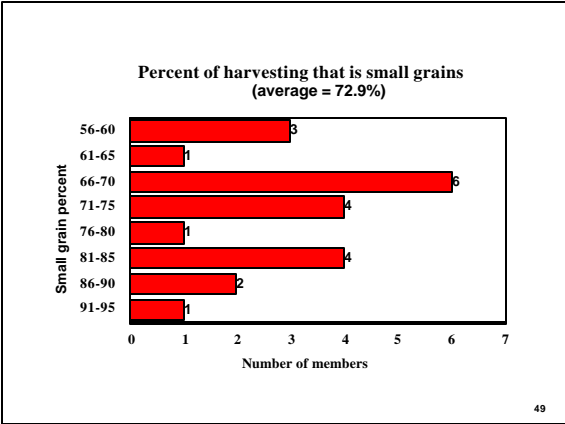
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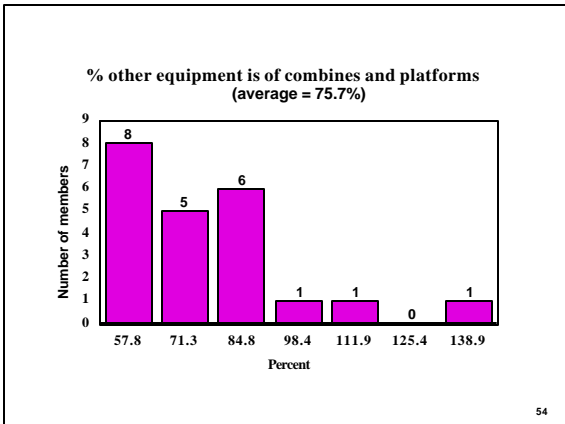
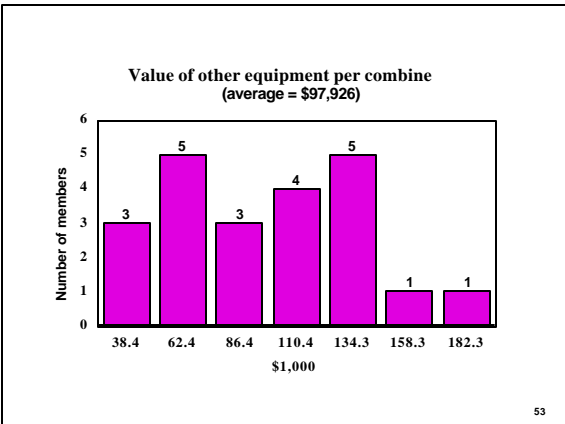
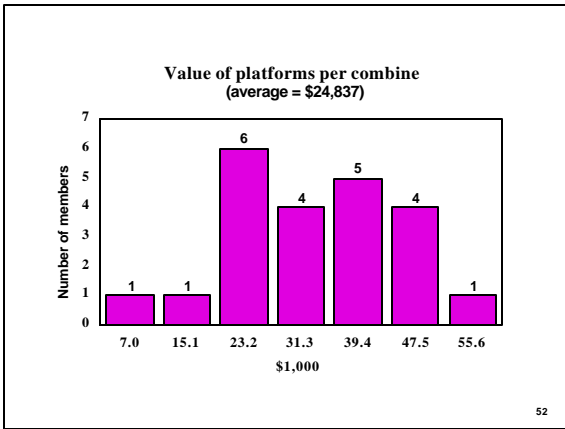
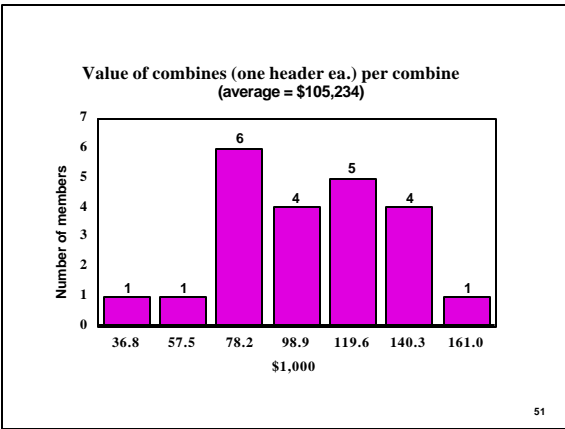


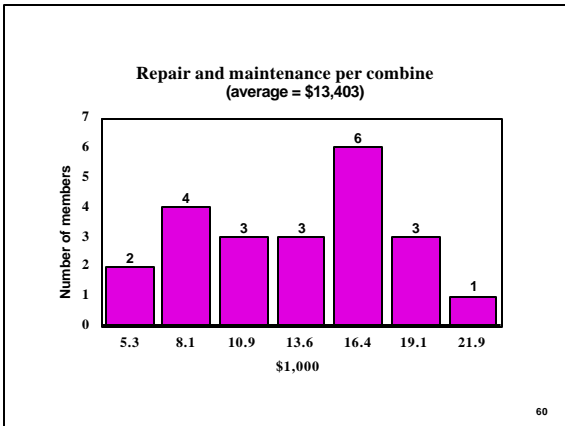
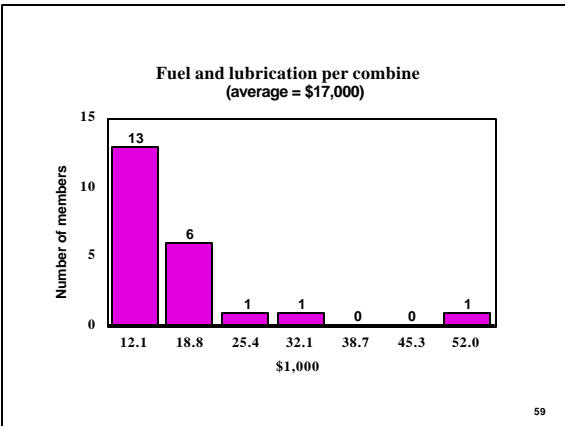
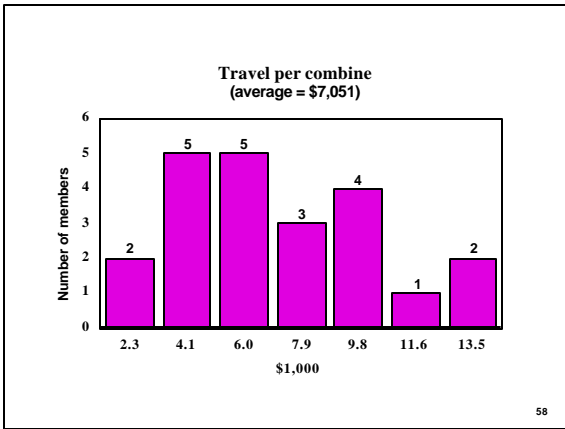
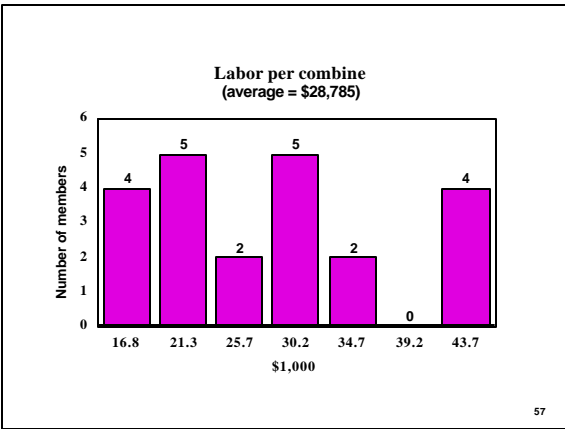
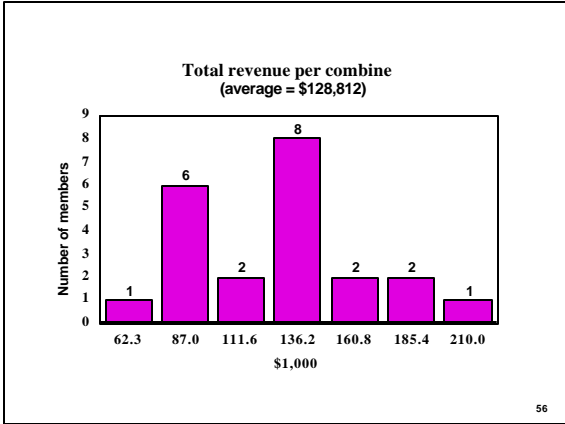
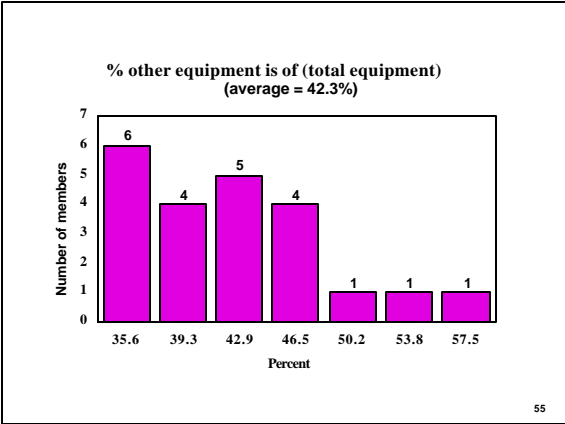
- Percent of Grain Hauled by Harvester**
- Wheat 93.4%
 - Corn 69.2%
 - Soybeans 82.2%
 - Barley 89.7%
 - Milo 88.8%
 - Sunflowers 75.0%
 - Canola/flax 100.0%
 - Average across all member reports = 90.7%
- 46

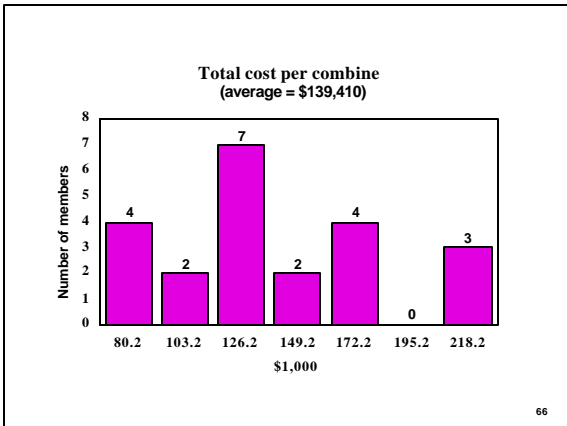
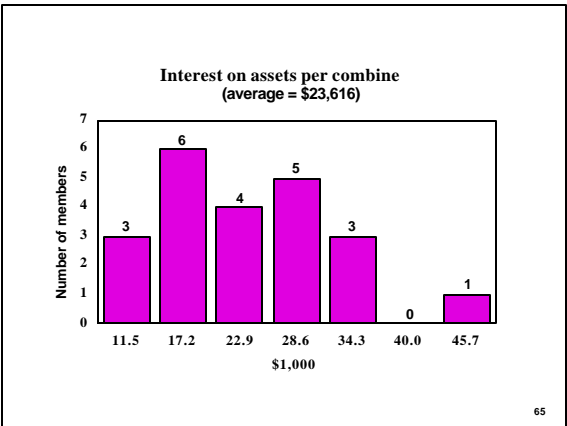
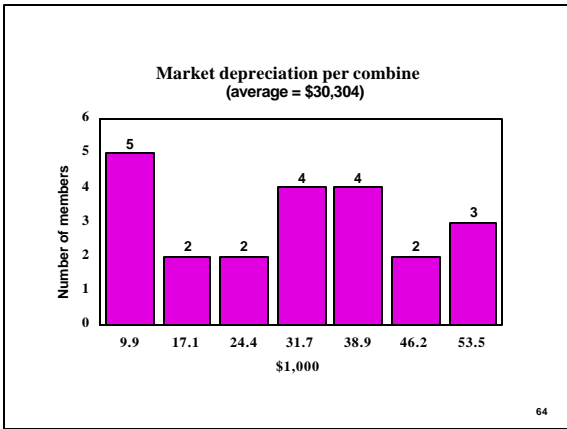
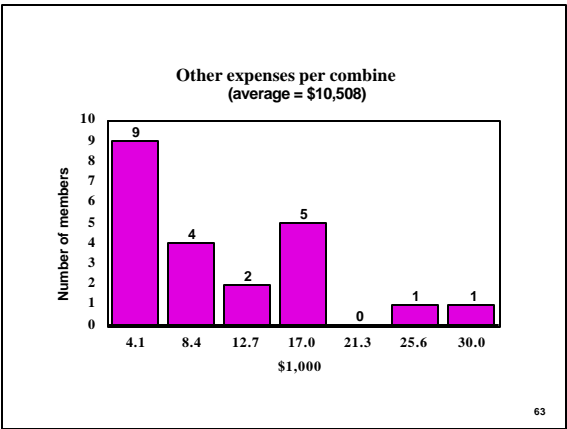
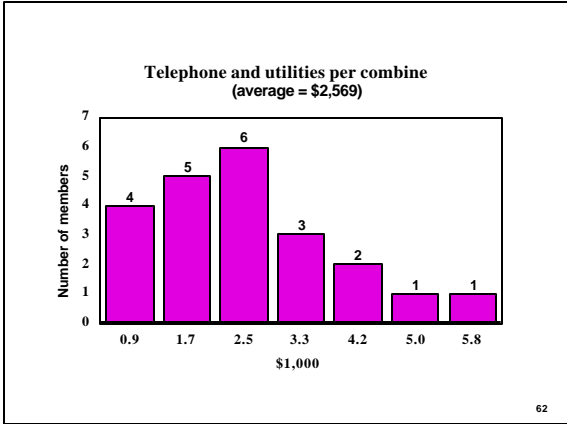
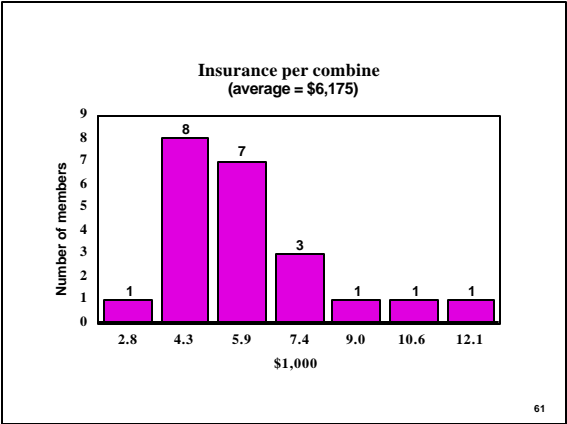


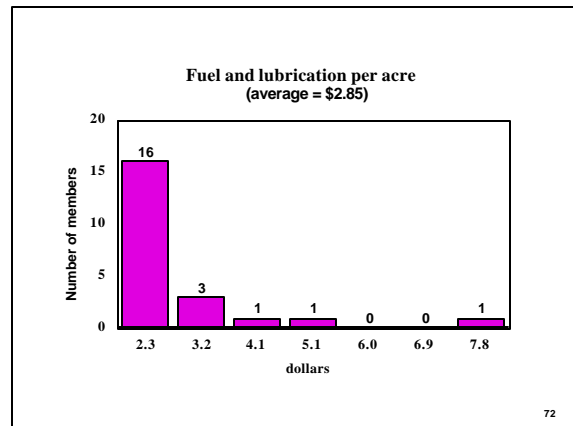
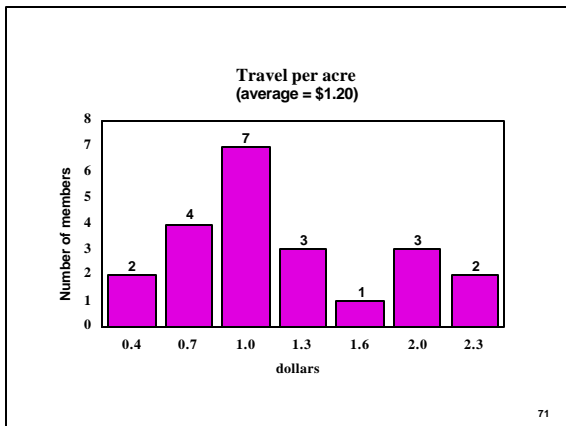
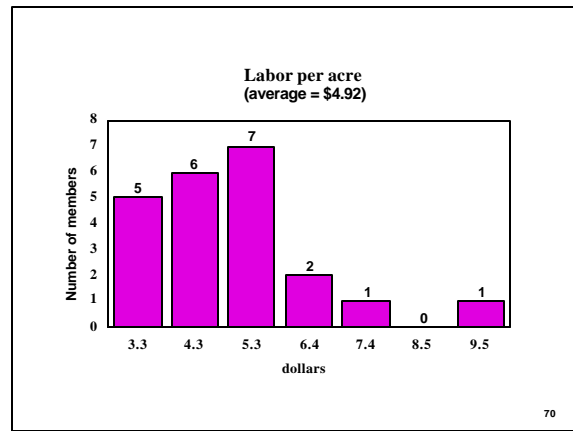
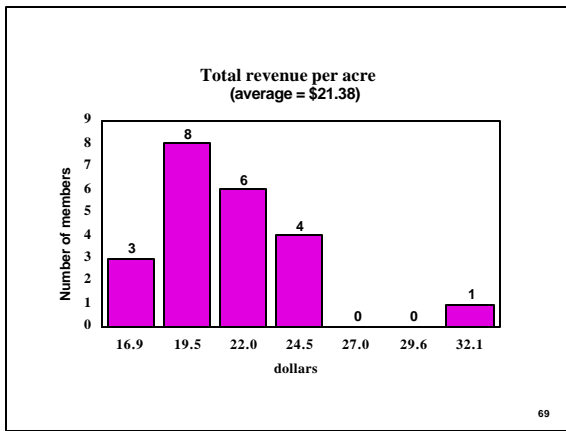
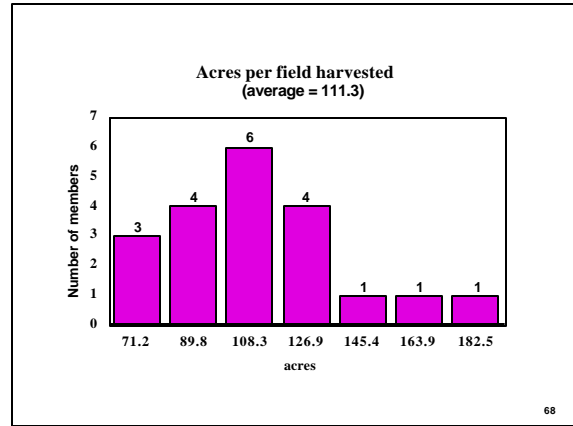
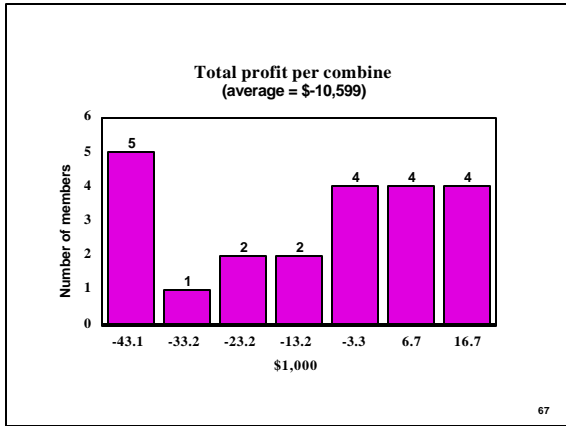


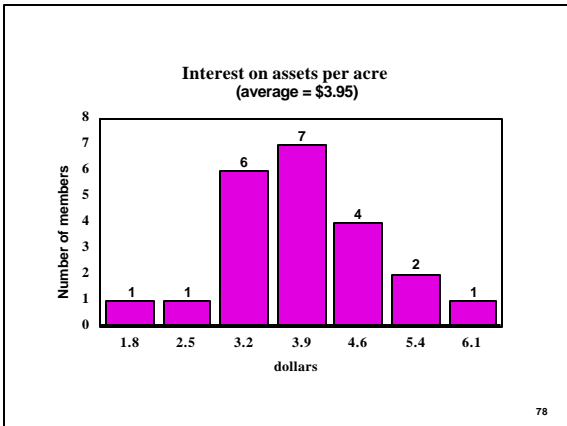
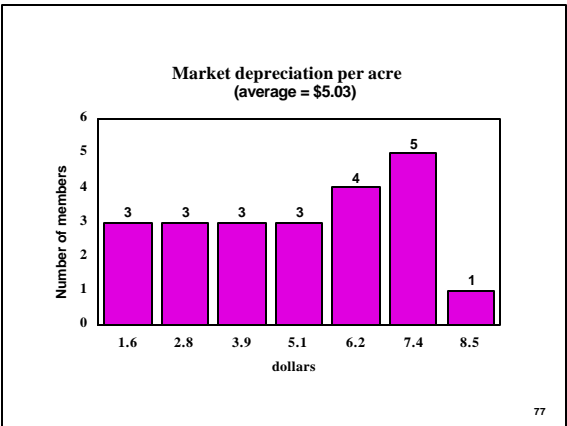
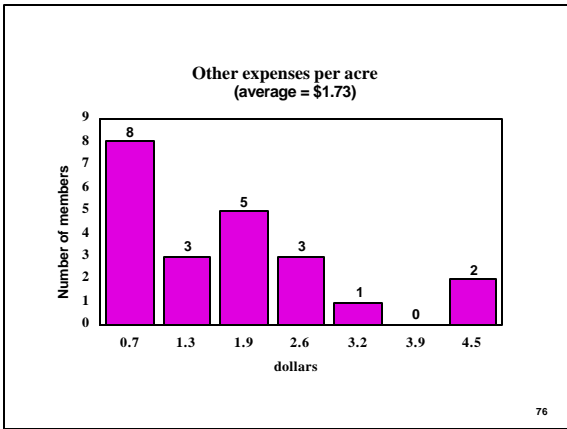
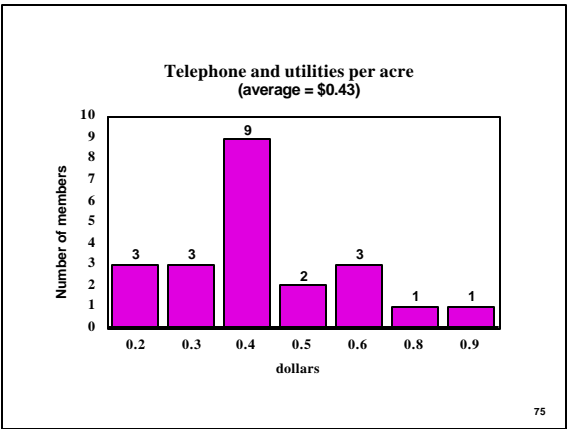
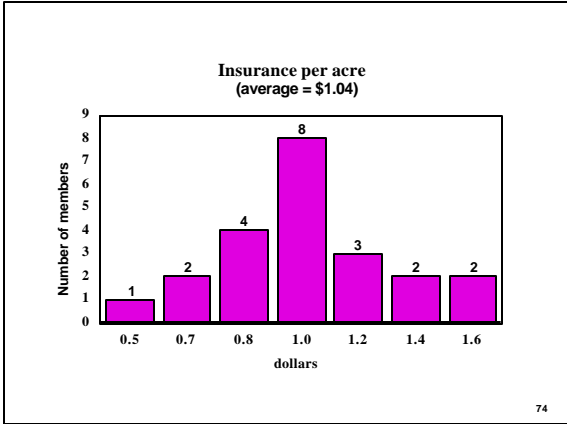
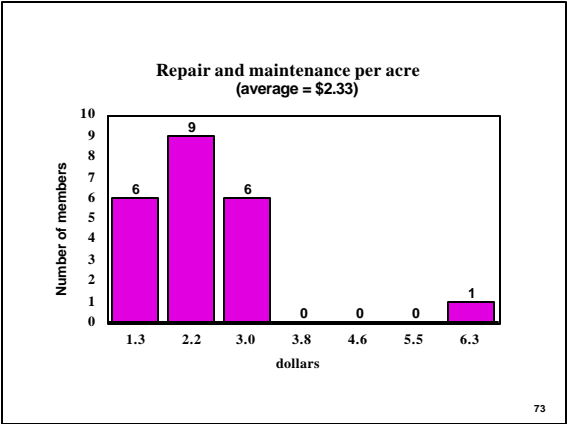
- ### Operating Expense Information
- Labor (paid and unpaid)
 - Travel
 - Fuel and Lubrication
 - Repair and Maintenance
 - Insurance
 - Telephone and Utilities
 - Other Expenses
 - Market Depreciation
 - Interest on Assets (assigned)
- 50

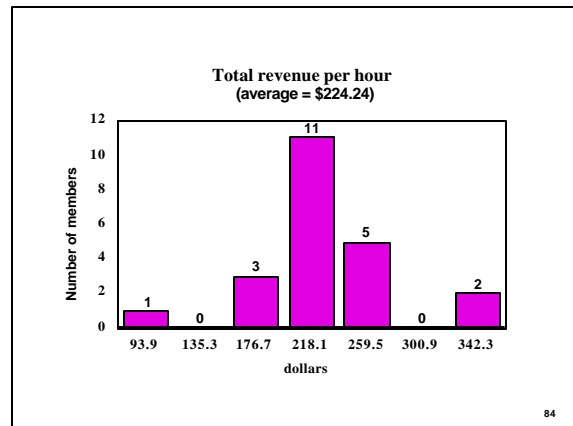
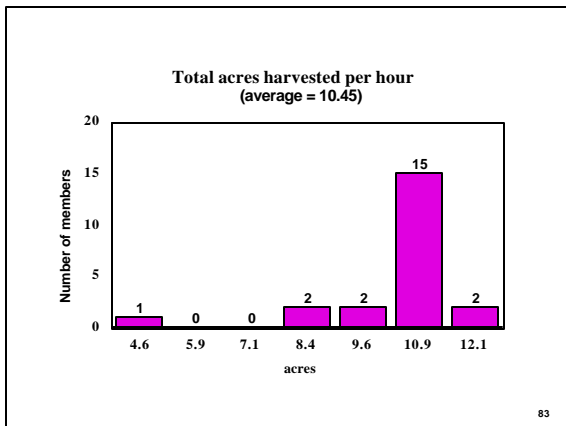
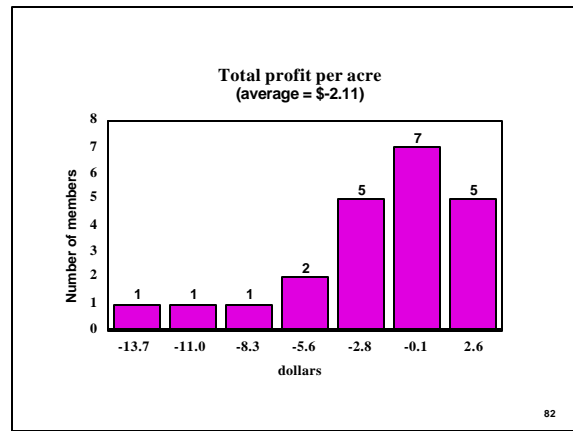
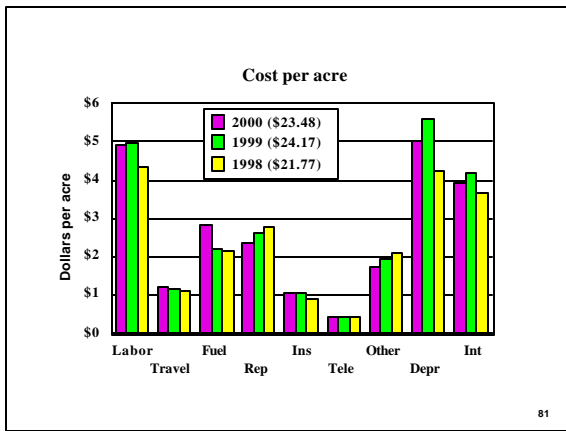
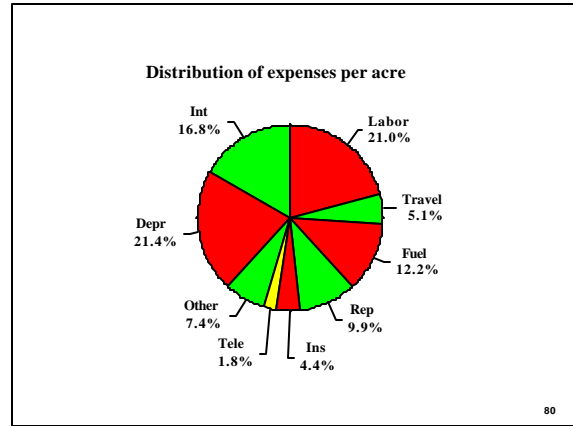
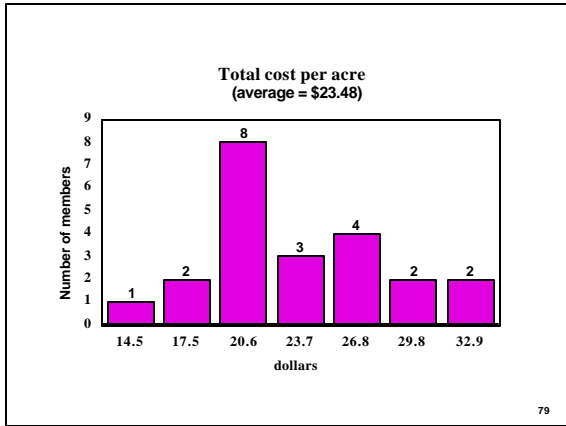


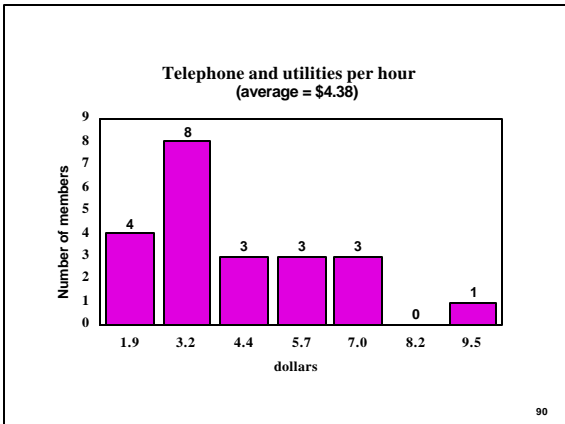
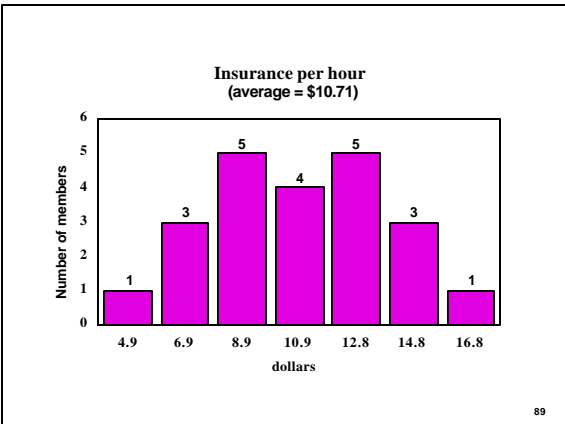
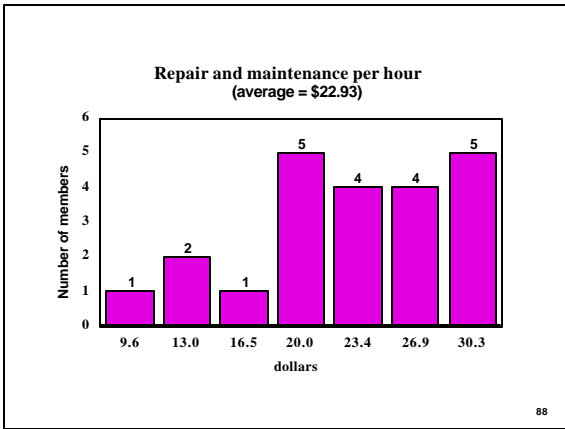
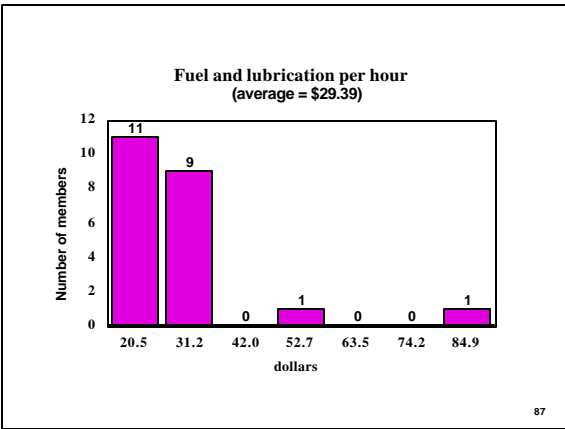
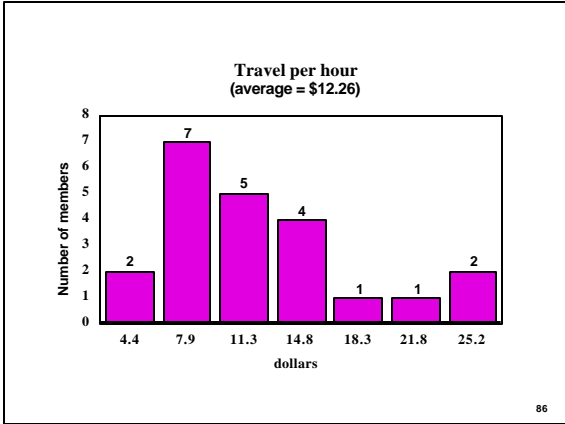
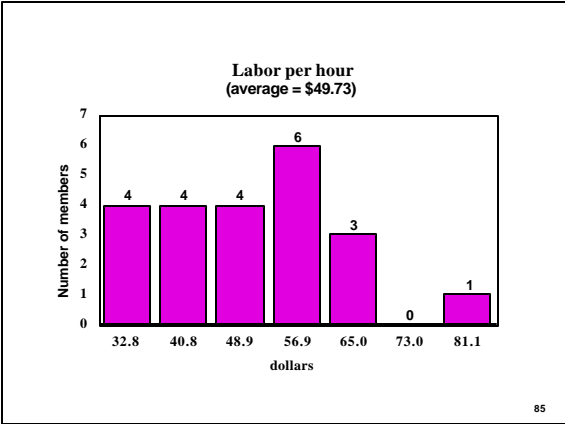


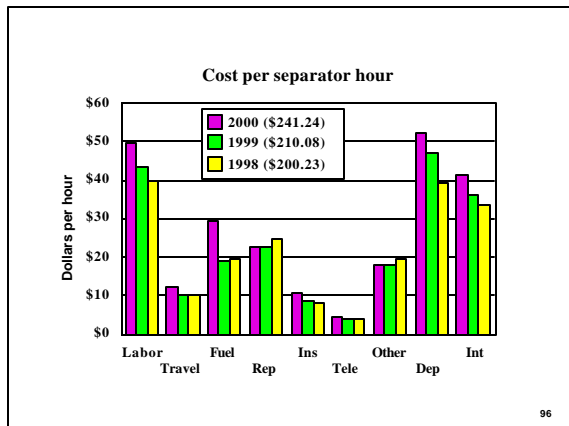
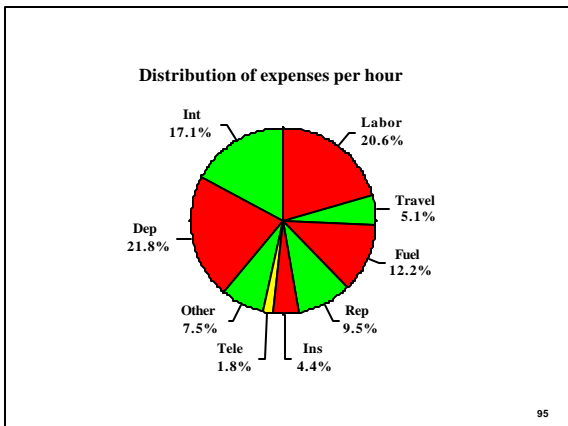
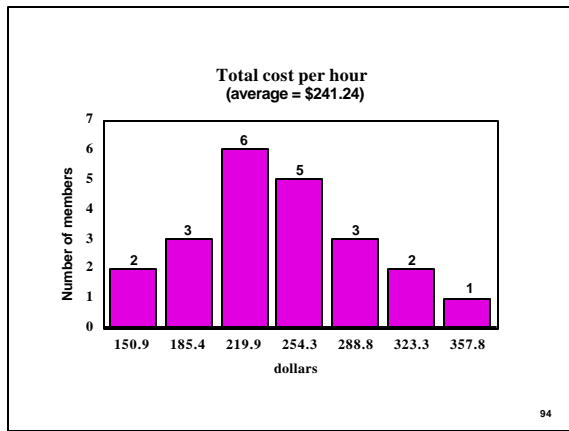
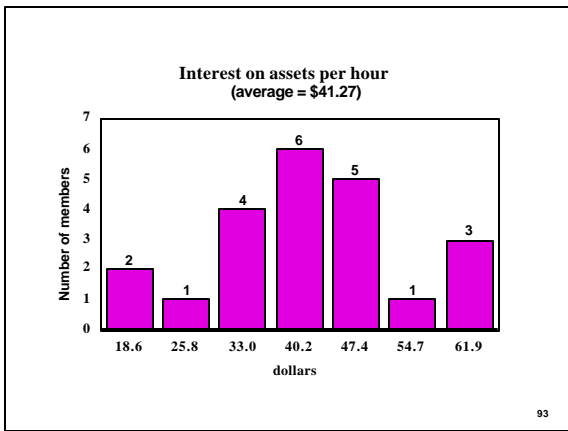
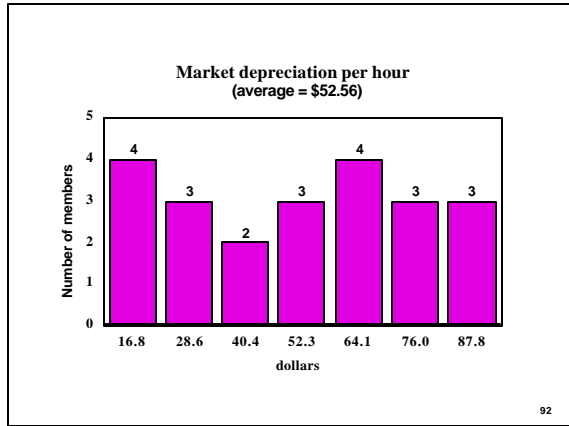
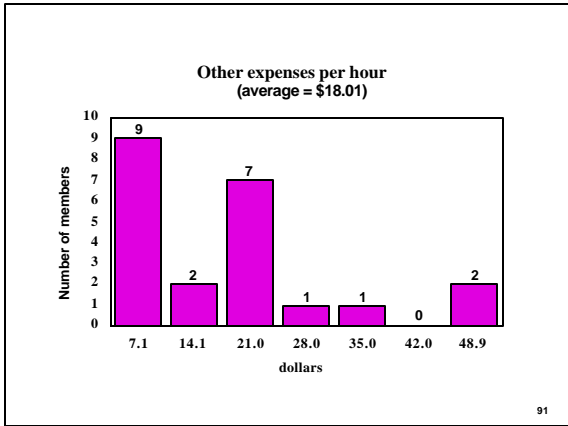


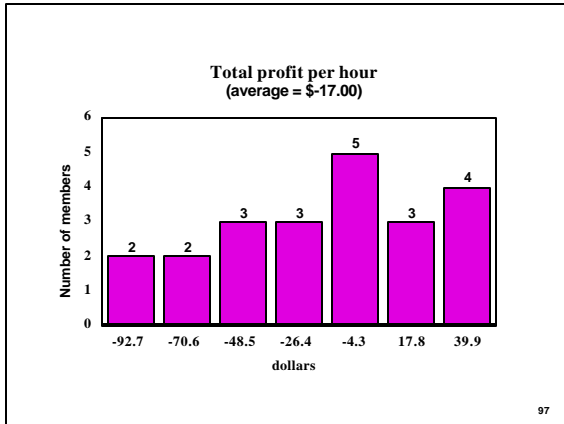












Profit and Financial Ratios

- 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) = $\frac{\text{change in equity}}{\text{beginning equity}}$

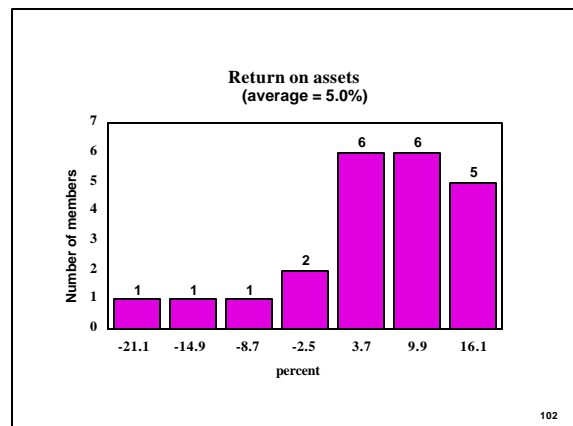
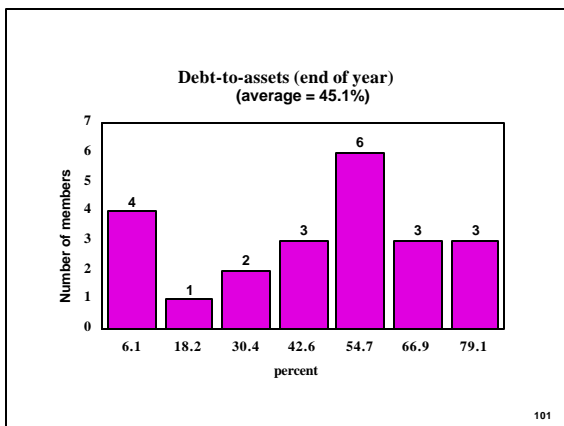
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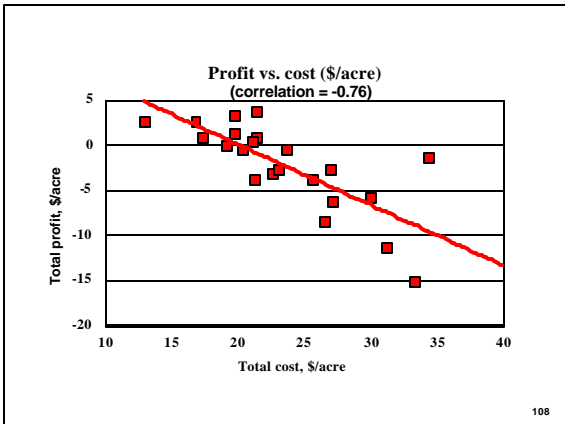
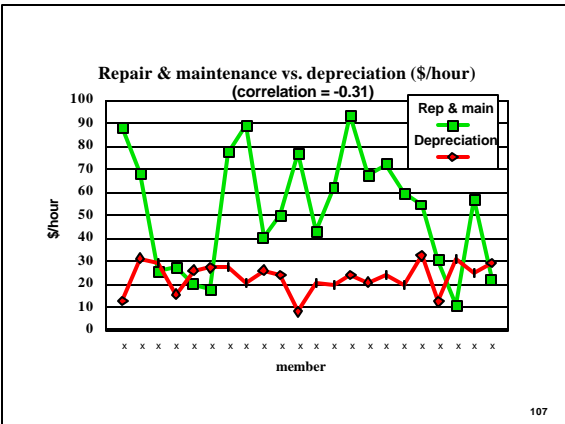
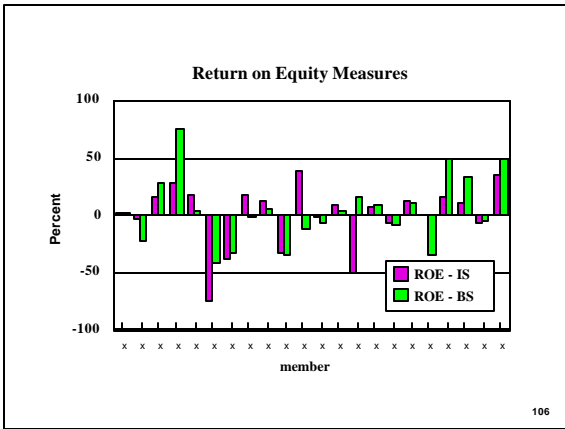
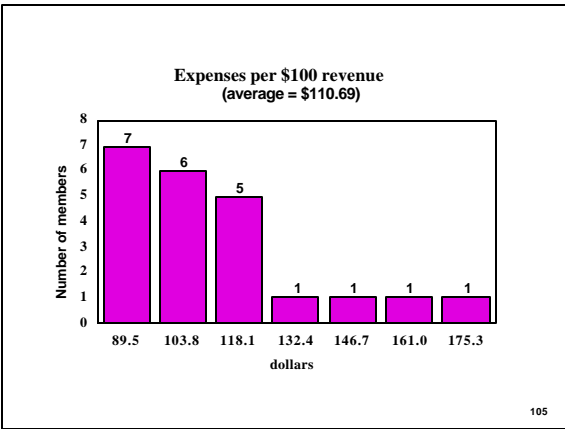
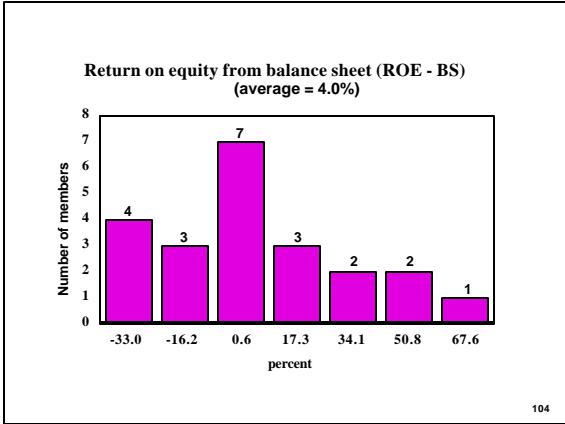
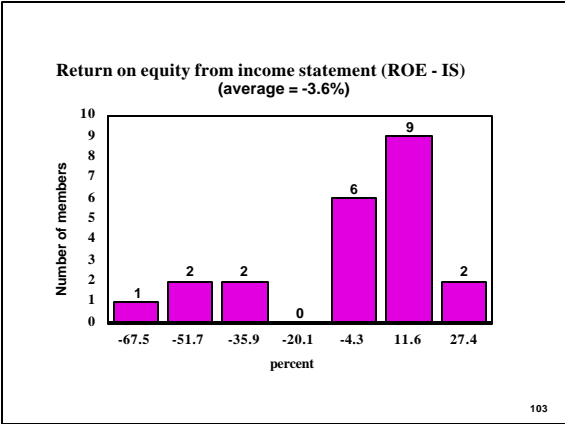
Expense Ratio

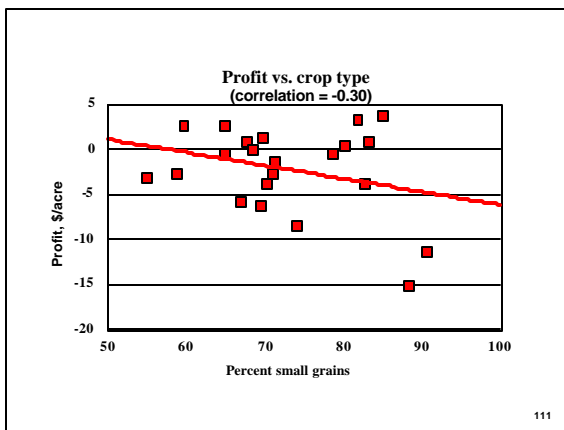
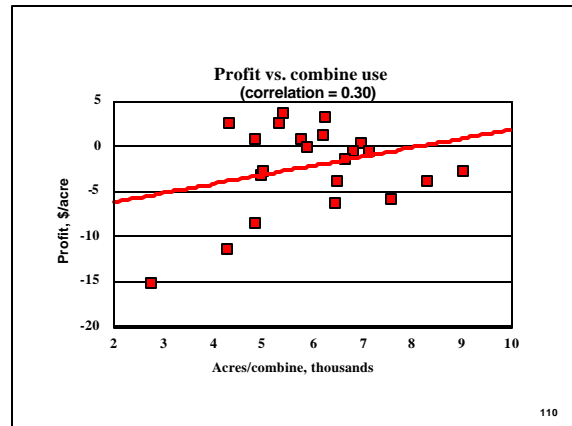
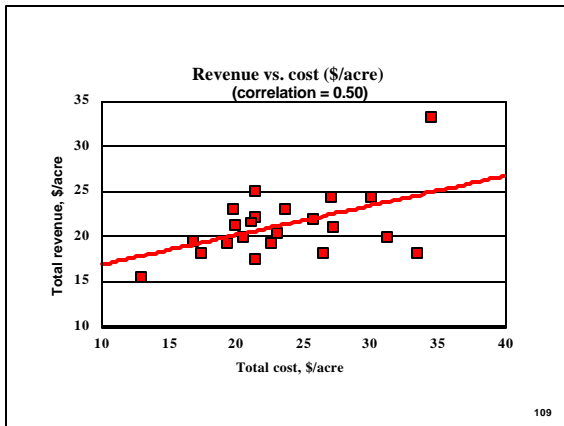
a measure of financial efficiency

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

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Summary

- **Considerable variability between firms**
 - 9 of 22 firms were profitable in 2000
- **CHAMP members are innovative**
 - 4 of 22 rented out machines (537 hrs./member)
- **Cost control is important**
- **Identify strengths & weaknesses of business**
- **Improvement over the years**

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