

## **18. Using a Spreadsheet to Manage Expenses**

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### **Abstract/Summary**

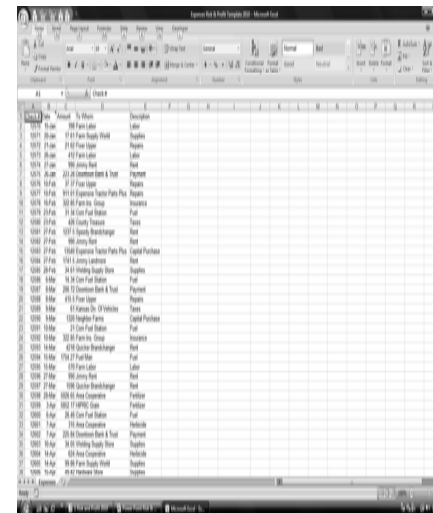
*Management of expenses is an important activity for farms and other businesses. Participants will experience use of Microsoft® Excel 2007 to enter, sort, find, total, tabulate, and graph expenses. Appreciation is expressed to Dr. Orlen Grunewald for providing info that helped Dr. Burton learn how to perform these activities and to David Widmar for preparing examples.*

# Risk & Profit Conf. 2010 Management of Expenses

- This Session covers
  - Adding a new expense record
  - Sorting expense records
  - Finding records
  - Subtotals
  - Database functions
  - PivotTable
  - PivotChart
- Open Expenses Risk & Profit 2010 Template

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# Expenses Database



Date	Description	Amount	To Whom	Check #
1/1/10	100 Cash			
1/1/10	101 Cash			
1/1/10	102 Cash			
1/1/10	103 Cash			
1/1/10	104 Cash			
1/1/10	105 Cash			
1/1/10	106 Cash			
1/1/10	107 Cash			
1/1/10	108 Cash			
1/1/10	109 Cash			
1/1/10	110 Cash			
1/1/10	111 Cash			
1/1/10	112 Cash			
1/1/10	113 Cash			
1/1/10	114 Cash			
1/1/10	115 Cash			
1/1/10	116 Cash			
1/1/10	117 Cash			
1/1/10	118 Cash			
1/1/10	119 Cash			
1/1/10	120 Cash			

- The database consists of five fields: Check #, Date, Amount, To Whom:, and Description
- Each record in the database represents an expense

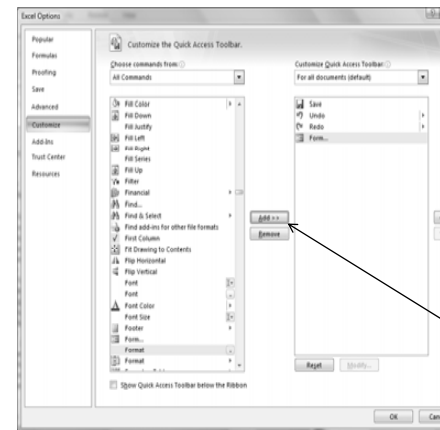
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# Entering Expenses

- To insert additional expenses to this database, you could just scroll to the bottom of the data set and add information in the appropriate column.
- The purpose of adding data as done in the next step is to show a possibly faster, more accurate way of adding data.

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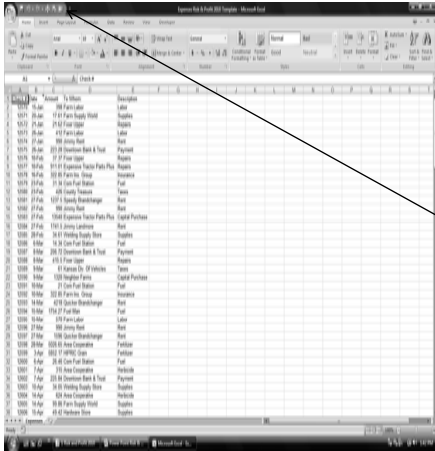
# Adding a Database Tool



- Open Office Button and select Excel Options.
- Under Excel Options on the left, select Customize.
- From the Choose commands from: drop down box, select All Commands.
- Scroll to and select Form... and click Add>>
- Click OK

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## Enter New Record



- The Form... tool makes adding entries to databases easier
- Select any cell in the data base
- From the Customized Quick Access Toolbar, select the Form... Icon

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## Enter New Record

- Click New
- Type in the record as it appears to the left (use tab between fields)
- New record will appear at the end of the database
- Close when finished

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## The New Record Should Appear As Follows

- 12737 29-Dec 85.95 Cheaper Tractor Parts Supplies

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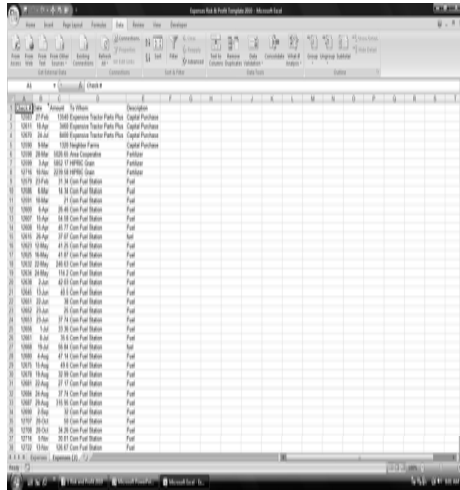
## Sort the Database

-From the Data tab and Sort & Filter group, select Sort.

- Sort by:
  - Description
  - Sort on Values
  - A to Z Order
- Add Level, then by:
  - To Whom:
  - Sort on Values
  - A to Z Order
- Then by:
  - Date
  - Sort on Values
  - Oldest to Newest
- Click OK

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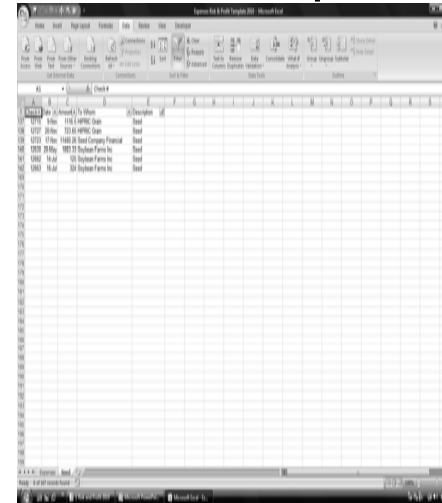
# Find All Records Where Description equals Seed



- First copy database to new worksheet
  - Right click on Expenses Worksheet
  - Select Move or Copy
  - Select (Move to end)
  - Check Create a Copy
  - Click OK
- Name new worksheet Seed
  - Right click on Expenses (2) Worksheet name
  - Select Rename
  - Type Seed
  - Hit Enter

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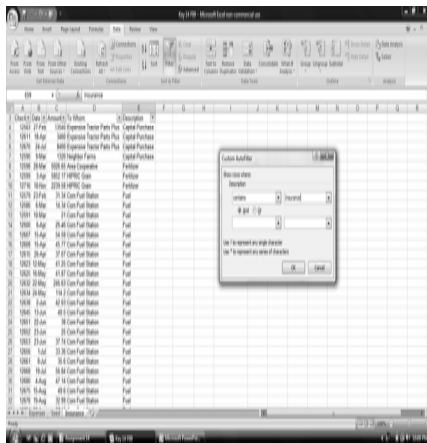
# Find All Records Where Description equals Seed



- From the Data tab and Sort & Filter group, select Filter
- Click arrow on Description and select only Seed
- Click OK

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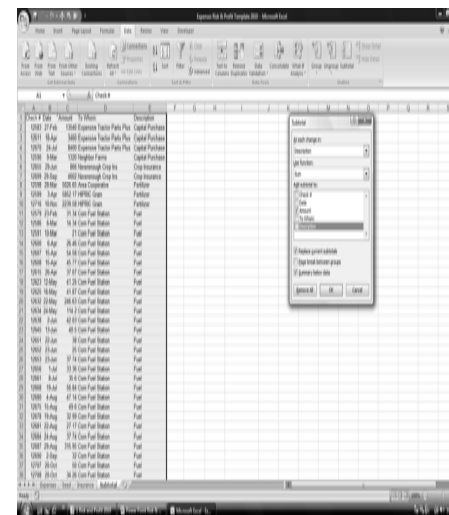
# Find all Records Where Description Includes Insurance



- Go back to worksheet Expenses and copy a new worksheet
  - Name new worksheet Insurance
- Select Filter again,
  - Click on Description arrow
  - Text Filters, Contains...
  - Type insurance
  - Click OK
- Notice Excel filtered out descriptions for “Insurance” and “Crop Insurance”

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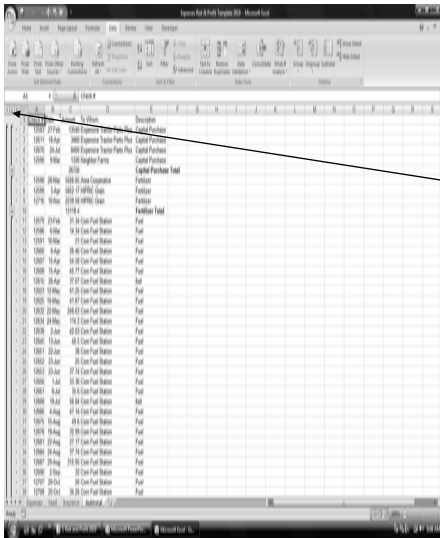
# Subtotals



- Go back to worksheet Expenses and copy a new worksheet
  - Name new worksheet Subtotal
- From the Data tab and Outline group, select Subtotal.
  - At each change in: Description
  - Use function: Sum
  - Add subtotal to: Amount
  - Unselect Description under Add Subtotal to
- Click OK

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## Subtotals



- Show the subtotals for each description
  - Go to the left of the worksheet and click on box 2 located below the cell reference

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## Extracting Data with Database Functions

- Database functions are used to analyze data with changing criteria.
- Database functions can extract both numbers and text.
- Dfunction(database,field,criteria)
  - Database refers to the entire list or database
  - Field refers to a particular column in the list.
    - This can be column headings in quotes (“”), or
    - The cell address containing the column heading.
  - Criteria specifies the basis on which you want the function to select particular cells.
    - A criteria range must include column headings.

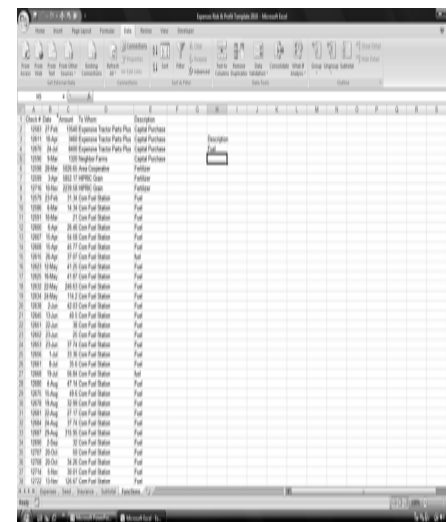
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## Common Database Functions

- DCOUNT
  - Counts the number of records that meet the specified criteria.
- DMAX
  - Extracts the maximum value within a specified range.
- DSUM
  - Sums the values with the specified range.
- DGET
  - Extracts a single value from the database, based on the specified criteria.
- DAVERAGE
  - Returns the average of the values within a specified range.

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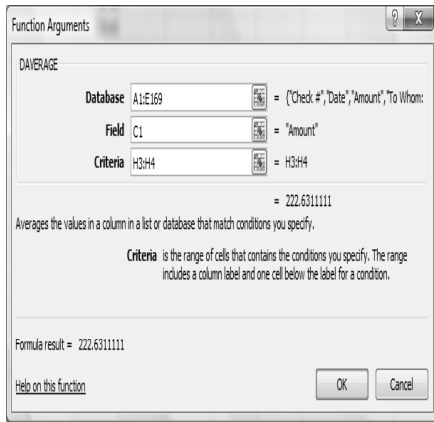
## Database Functions



- Go back to worksheet Expenses and copy a new worksheet
  - Name new worksheet Database Functions
- 1. Set up a criteria block (Warning! These cells cannot touch the database)
  - In cell H3
    - Type Description
  - In cell H4
    - Fuel

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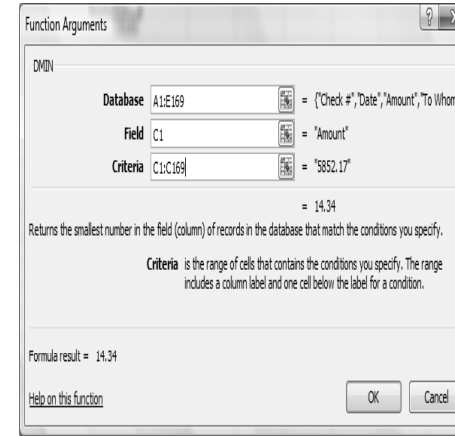
# Database Functions



2. Click on cell H5
  - Go to  $f_x$  and select DAVERAGE
    - Database is entire list cells A1:E169
    - Field is “Amount.” Click on cell C1
    - Criteria is H3:H4
  - Click OK
  - This returns the average amount of dollars in fuel expense

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# Database Functions



3. Click on cell H6, calculate DSUM of Amount using Fuel as the criteria.
4. Click on cell H7, find DMIN of Amount using cells C1:C169 as the criteria.
5. Click on cell H8, find DMAX of Amount using cells C1:C169 as the criteria.

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# Remove Form Tool

- You can remove the database Form... tool from the Customized option in Excel Options.
  - Select Form... from the right box
  - Click Remove
  - Click OK

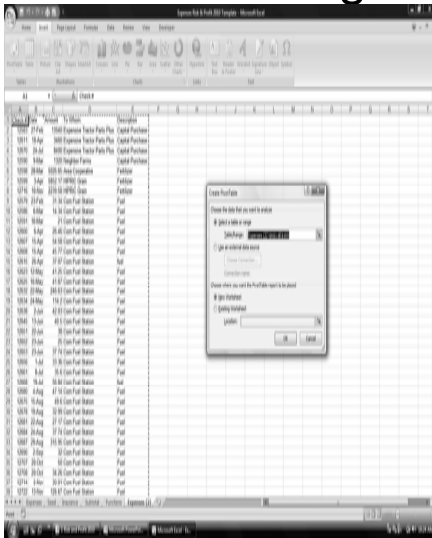
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# Understanding Pivot Table

- A Pivot Table summarizes data.
  - You can pivot the table (change the information requested).
  - You can view details that make up numbers in a table.
  - You can audit the data in the table.
- Pivot Table allows you to summarize the data in a new arrangement instantly.

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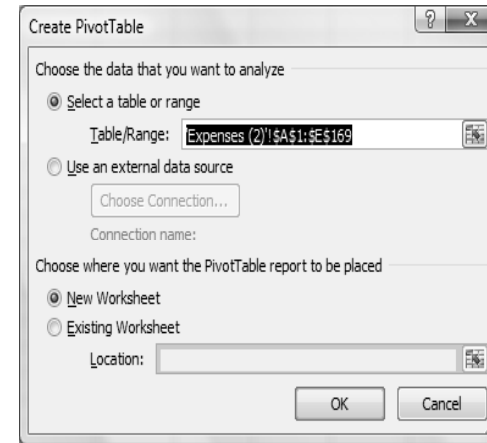
## Using Pivot Table



- Go back to worksheet Expenses and copy a new worksheet
- Select any cell in the database
  - Go to the Insert Tab
  - From the Tables group click PivotTable.
  - The data range should include all the data, A1:E169
  - To get the data set, you may click on one cell in the data set, highlight the entire set, or type in the range of the data set

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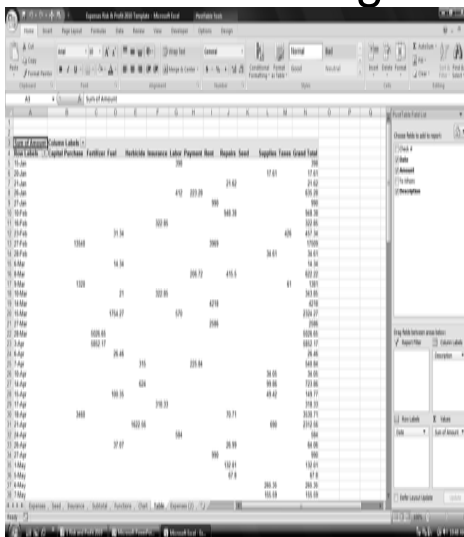
## Using Pivot Table



- Choose where you want the PivotTable report to be placed
- Select New Worksheet
- Click OK

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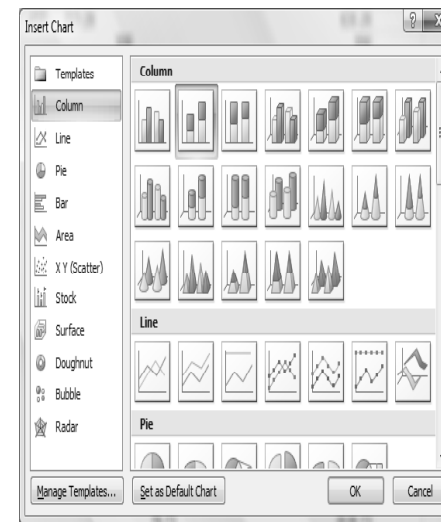
## Using Pivot Table



- From the Field List, click on the desired field from the Choose fields to add to report: window and drag to appropriate area below.
  - Drag Description to Column Labels
  - Drag Date to Row Labels
  - Drag Amount to Values
- Name the PivotTable worksheet Table

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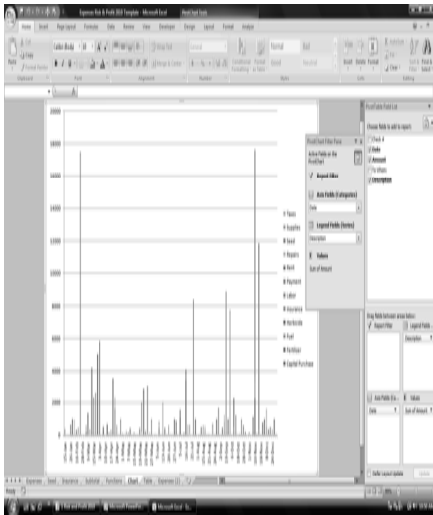
## Create a PivotChart



- Create Stacked Column PivotChart and move to a new sheet.
  - Under the Options tab and Tools group, click PivotChart
  - Under Column, select Stacked Column
  - Click OK
- Move the PivotChart to a new worksheet
  - Form the Design tab, Location group, click move chart
  - Select New sheet:
  - Name the worksheet “Chart”
  - Click OK

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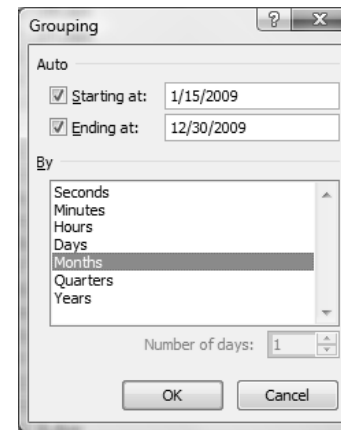
## Recognize the Need for Grouping



- From the PivotChart as it is, there are a lot of dates on the horizontal axis.
- Go to the PivotTable sheet
- Here you can see that Excel has an entry for each date, or 111 entries

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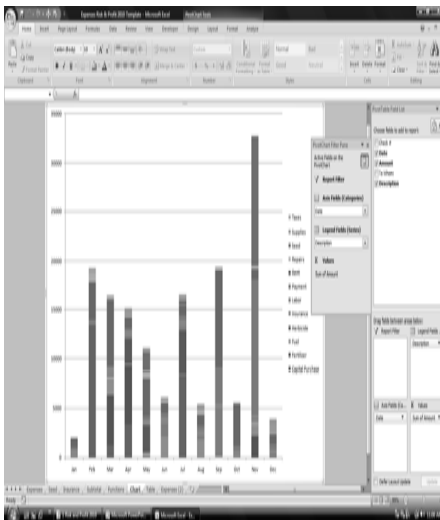
## Group Dates



- Go back to the Table worksheet
- To organize the data for monthly cash flow management, we need to group the dates
- Right-Click on the first date in the PivotTable
  - Go to Group...
  - By Months
  - Click OK
- Go back to the Chart Sheet
  - Note: The PivotChart automatically updates from the PivotTable changes

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## Format the PivotTable



- From the grouped data, it is easy to see the month when the money was spent
- Go back to the Table worksheet
- Format the numbers in the PivotTable
  - Right-click on a number in the table
  - Select Number Format...
  - Specify currency, no decimal, and use \$ symbol

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## Finish PivotChart



- Open Chart worksheet
- Use Layout tab to add:
  - Above Chart title: Farm Expenses
  - Rotated Vertical axis title: Expenses
- Remove the PivotTable Field List and PivotChart Filter Pane windows.

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