# Spreadsheets 102

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# Goals for this Session

- Start a spreadsheet from scratch

  - Agritourism Event

- Basic formatting

- Entering formulas

- Using built-in functions

- Protecting your work

- Pivot Table teaser

# Starting a Spreadsheet

- Open Excel or Google Sheets

- You have a blank canvas in front of you!

- Let's create a simple enterprise budget for an agritourism event

| Item | Quantity | Units | Price/Unit |
|------|----------|-------|------------|
| Customers | 1,000 | People | $5.00 |
| Food Sales | 300 | Meals | $8.00 |
| Meals COGS | 350 | Meals | $4.50 |
| Hired Labor | 40 | Hours | $12.00 |
| Marketing | 1 | Event | $1,350 |
| Event Insurance | 1 | Event | $1,500 |

# Organizing Your Spreadsheet

- Click on Cell A1 and enter a title:          Agritourism Event Budget

  - Format it however you want                Bold, font size 18, green, etc.

- Design the budget to meet your needs

  - To save time (and hide my poor typing skills) I've entered the main information

    - No formulas, just text and numbers

- **Doc White Tip:**  When in doubt, highlight a cell and right click!!

  - A pop-up menu will show you the main options for that cell
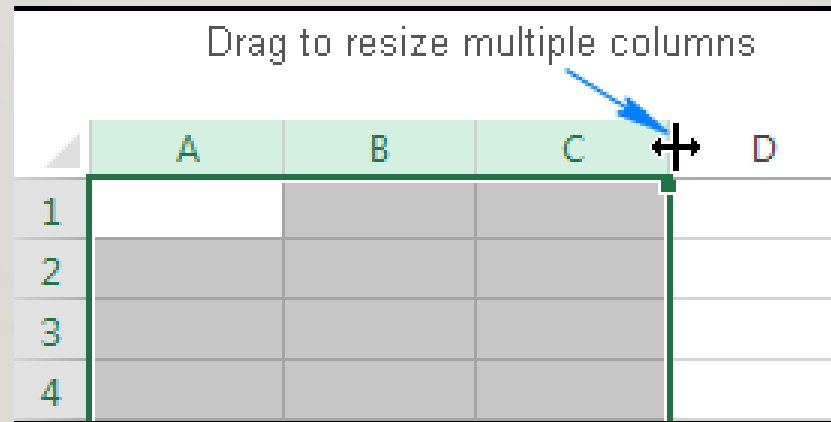
# Formatting the Sheet

- Changing column widths
  - Highlight the column(s) that you want to change
    - Put your cursor on the letter in the column heading
    - Click & drag to highlight more than one column
  - Right click and choose "Column Width"
    - Enter the column width you want (units differ)
      - Normally in "characters" not inches
- Same process for changing row heights
  - Highlight the row number(s), right click, choose "Row Height"
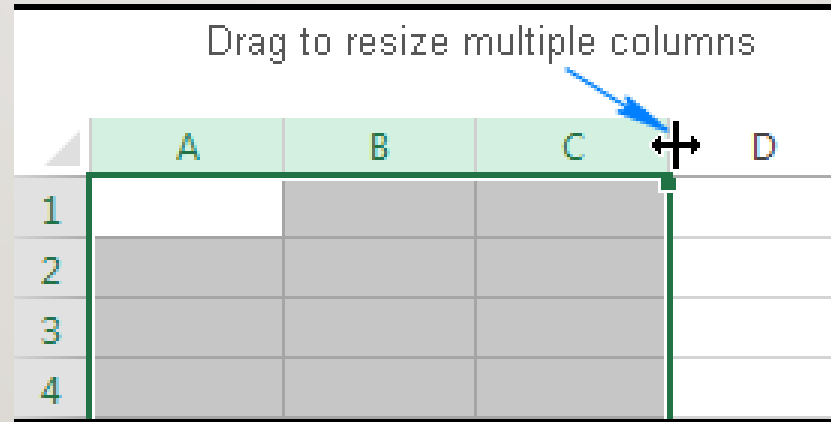
# Formatting the Sheet

- Changing column widths and row heights – the "automatic way"
  - Highlight the column(s) or row(s) that you want to change
  - Point your cursor to the far right edge of the column
    - Your cursor turn into a vertical bar with 2 horizontal arrows

# Formatting the Sheet

- Changing column widths and row heights – the "automatic way"



- You can click on that icon and drag it left or right to change the width (or height)

- OR – double click on that icon and all the highlighted columns (or rows) will automatically change to the minimum size needed to show all the contents

# Formatting the Sheet

- Highlight the cells you want

- Right click

- Choose "Format Cells"                              (or use the Home Menu)
  - Number – how you want the data to appear (text, date, currency, %, etc.)
  - Alignment – centered, wrap, etc.
  - Font
  - Border
  - Fill
  - Protection  (2-step process)

Save your work often!!

# Inserting or Deleting a Row or Column

- Rather than moving information around, it may be easier to insert or delete rows or columns

- Highlight the row number(s) or column letter(s) of the ones you want to insert or delete

  - Right click and choose either "Insert" or "Delete"


- I want to insert a row just under the "Date" row

  - Highlight the number "4" in the row heading

  - Right click and select "Insert"

# Doc White Tip

- Enter the information you know as "hard numbers" (250 acres, $4000)
  - Prices, quantities, etc.
  - **Enter the "250" in one cell and the "acres" in a separate cell**
- Use all cell references (A3, D7, …) in your formulas
  - Exception: You can type "constants" into formulas (or into a data table!)
    - 2000 lbs/ton, 365 days/year, etc.

# Doc White Tip

- Once your formula is entered correctly – SAVE!!

  - All future calculations will be made without any math errors!!

  - You can change variables as much as you want – the math will be correct!

    - Assuming you keep your units straight!!


- **Save your work often!!**

# The True Power of Spreadsheets – Cell References

- **Doc White tip:**
  - Let the spreadsheet do the work for you
    - Use cell references in formulas, not "hard numbers"
  - Example:    1000 customers x $5/customer
    - **The Not Good Method:**                1000 x $5 = $5,000
      - In Excel:    =1000*5
      - If you want to use 2,000 customers or $7/customer
        - You need to retype your formula

# The True Power of Spreadsheets – Cell References

- Example:   1000 customers x $5/customer
  - **The "Good Method"**
    - Enter 1000 in cell D7
    - Enter $5 in cell E7
  - In cell F7:  enter a formula using cell references
    - Cell F7 looks like this:    =D7*E7
  - If you want to change the customers to 2,000, simply type 2000 in cell D7
    - The total admission fees recalculates automatically!!
    - Magic!!

# Copying Formulas and Text

- Right Click on the cell(s) you want to copy
  - Choose "Copy"
  - Highlight the cell(s) where you want to paste and right click
  - Choose "Paste" (lots of options!)

- Highlight F7 and right click
  - Choose "Copy"

- Highlight F8:F9 and right click
  - Choose "Paste"                    You may need to format these cells

# Copying Formulas and Text

- A short-cut method

- Highlight the cell(s) you want to copy
  - Move your cursor to the bottom right corner of the highlighted range
    - Your cursor turns into a "plus sign" or "crosshairs"
  - Click on that "plus sign" and drag it in the direction you want to copy

# Built-in Functions

- 100s of these things
  - Finance, statistics, dates, text, database, etc.

- **Doc White Tip:**
  - Use YouTube®  to find a short video on how to use the function you want

# Built-in Functions

- Let's use the SUM function (and AUTOSUM) to calculate Total Revenues
  - Click on cell F10 and enter =SUM(F7:F9)
  - Or, click on cell F10, click on the AutoSum icon on the Home Menu
    - Excel guesses what you want to Sum
      - If it doesn't guess correctly, simply highlight the range you want to SUM

# Commonly-used Built-in Functions

- SUM, AVERAGE, COUNT, MAX, MIN

- Time Value of Money:    FV, PV, PMT, NPER, RATE, IRR

- IF, OR, AND, IFERROR

# Adding In a Fudge Factor

- Build in a "what if" or a "worst case" scenario                           Fudge Factor

- Row 18
  - Add a method of adding a percentage to the other costs
  - Cell D18:   enter the sum of F13:F17                                     =SUM(F13:F17)
  - Cell E18:   enter a percentage, say 10%                                  10%
  - Cell F18:   multiply D18 by E18                                          =D18*E18

# Completing the Budget

- F19: use SUM function to calculate "Total Expenses"      =SUM(F13:F18)

- F21: Calculate "Expected Profit"                              =F10-F19

- **Press "Save" often!!**

- C24: Calculate "Breakeven Admission Price"
  - (Admission Revenues – Expected Profit) / Number of Customers
  - =(F7-F21)/D7

# Completing the Budget

- C24:  Calculate "Breakeven Number of Customers"
  - (Admission Revenues – Expected Profit) / Admission Fee per customer
  - =(F7-F21)/E7

- C28:  Calculate "Maximum COGS for Meals"
  - (Current Total COGS + Expected Profit) / Number of Meals Prepared

# Protecting Your Work

- One you have your formulas correct, save and protect them

  - Prevent accidentally overwriting them!

- First, "unprotect" all of your input cells

  - Highlight the input cells (one at a time or as a range)

  - Right click and choose "Format Cells"

  - Click on "Protection"

  - Make sure the "Locked" box has nothing in it (no check, no black box)

    - Click "OK"

# Protecting Your Work

- Next, click on the "Review" tab on the main menu

- Click on "Protect Sheet"
  - A pop-up menu appears with all your options

- I normally use the defaults
  - Click "OK"

- Try to type something into F7 – you can't!

- Try to change the number of customers to "1500" – it works!

- Click "Unprotect Sheet" if you want to change anything else on the sheet

# Herd Records Example

- Age at Weaning

- Average Daily Gain

- Days in Calving Period

- AVERAGE    MIN    MAX

  - Specify the range

- COUNTIF    AVERAGEIF

# Pivot Tables

- Rather than using all the AVERAGEIF and COUNTIF functions

  - Check out Pivot Tables!

    - This is a topic for another session

    - Not the easiest thing to set up, but powerful once they're developed!

  - Herd Records Example

    - Can filter which sires you want to see

    - Can collapse the "details" (bulls & heifers) for each sire

    - Can add/delete any of the columns from your initial data table

# Now That Your Head Has Exploded!

- Create what you want/need
  - Revise it over time

- You can't break Excel (I've tried!)
  - Try something
    - If it doesn't work, delete it and try something else

- YouTube® is your best friend for learning bits & pieces
  - The Excel help function can be a little intimidating!

# Now That Your Head Has Exploded!

- When in doubt, right click

- Borrow from other spreadsheets (yours or others)
  - Tailor them to your situation
    - Why reinvent the wheel when you can improve on it!
  - Cite your source
    - Also gives you a good place to look for help!

- I've only scratched the surface – there's so much more in Excel!