## The Function and Application of Spreadsheets Objectives:

- The student will understand what a spreadsheet is.
- The student will learn how spreadsheets are used in agriculture.
- > The student will learn to use a spreadsheet.

#### What is a spreadsheet?

- > Spreadsheet = computer software program
  - > User enter numbers and text into a table
  - > Table has rows and columns
  - > Can maintain and manipulate those numbers
- Some credit Dan Bricklin, a Harvard Business School student as the "father" of the electronic spreadsheet in 1978

a. Spreadsheets = computerized grid consisting of rows and columns = cells

**b.** Cells can be:

- changed to any size in order to display text or numeric data
- formatted much like a Word document

c. Cells can be given a variety of borders and colors

d. Data in each cell can be formatted in a variety of ways including currency, dates, percent, or text.

el Cells can also be given a very wide variety of mathematical formulas = addition, subtraction, multiplication, and division

f. Data in cells can also be converted to graphs

g. More complex formulas can also be used to make financial, statistical, logical, and other calculations.

How are spreadsheets used in Agriculture? AGRIBUSINESS USES

#### Inventories

- calculate the total inventory value
- Calculate change in value from the beginning to the closing inventory

#### Balance Sheet

- add values for assets and liabilities
- calculate net worth and financial ratios

#### **Budgets**

- complete personal, partial, enterprise, or complete business budgets
- can be saved from year to year and changes are quick and easy

## • <u>Cash Flow</u>

- advanced cell formulas
- can indicate how much and when operating loans will be needed

#### **Financial Planning**

keep track of finances like checking and savings accounts as well as investment

Interest, amortized payments, and future value can all be calculated

#### <u>Graphs</u>

- data and statistics can be displayed
- bar graphs, line graphs, pie charts or other displays.

#### **Invoices**

can be used to create invoices so an agribusiness can bill customers

#### ENTERPRISE SPECIFIC USES

**Animal Science** – breeding records, feeding & ration balancing, veterinary records, yield grading, efficiencies, other.

- Ag Mechanics maintenance records, bill of materials, fuel usage, depreciation.
- Agronomy chemical application (purchasing, mixing), harvest yields, soil types, fertilizer applications.

# **Basic functions to use Excel**

- Like Word, Excel utilizes similar menu bars and icons for various operating functions.
- A grid of numerical rows and alphabetical columns create individual cells that can contain different types of data (numbers/text).
- Using the mouse you can move from cell to cell, click on menus and toolbars, scroll, resize rows and columns etc.

# **Basic information to use Excel**

- using the keyboard you can enter data/information, tab, move with arrow keys
- a spreadsheet file or document is called a workbook – workbooks can have multiple pages called sheets.
- to save an Excel spreadsheet, just click on file and save as. Chose a file name and location.

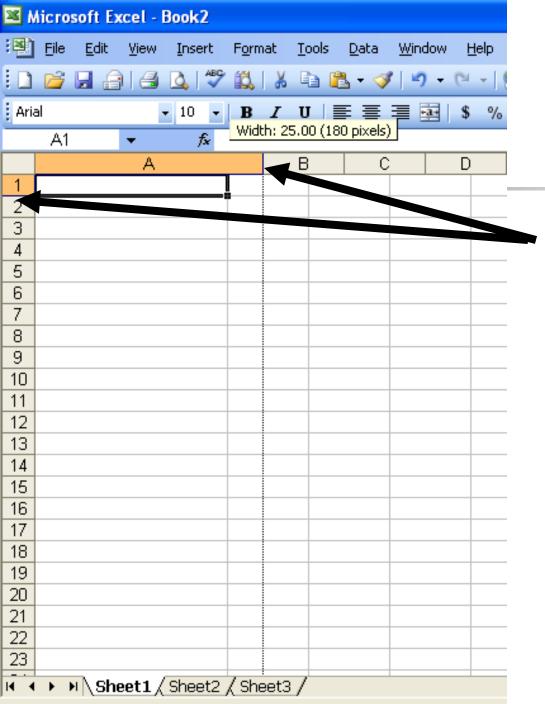
# This is what a blank Excel Spreadsheet looks like

× 1	Microsoft E	xcel - Bool	k1									_ & X			
:8	Eile Edit	⊻iew <u>I</u> ns	sert F <u>o</u> rmat	t <u>T</u> ools <u>D</u> o	ata <u>W</u> indov	w <u>H</u> elp				Type a questi	on for help	8 ×			
Ari	) 📂 🛃 🔒 ial A1	• 10		χ <u>π</u>  ≣=						Image: Constraint of the second secon					
	A	► B	C C	D	E	F	G	Н		J	К				
1 2 3 4 5															
6 7 8 9 10 11 12				me	The tool bar icons and menus are very similar to what you use in Word.										
13 14 15 16 17 18					at yt										
19 20 21 22 23															
Id d		eet1 / She	et2 / Shee	et3 /				<			BH IBA				

<b>X</b> W	<mark>icrosoft</mark> E	xcel - Book	c1										J 🗙
:B)	<u>E</u> ile <u>E</u> dit	<u>V</u> iew <u>I</u> ns	ert F <u>o</u> rmat	<u>T</u> ools <u>D</u>	ata <u>W</u> indo	w <u>H</u> elp				Type a quest	ion for help	-	.8×
	🖻 月 🖨		ABC 👸 🛛	X 🗈 🖺	- 🍼 🔊	- (21 - 1 😣	Σ <del>-</del> <u>2</u> ↓	<b>Z↓   ∭ 4</b>	🔥 100% -	- 🕜 📘			
Aria						\$ %							
1 114	A1		fx 2	· · · -		1 4 10	∕ .00 →.0		ш · <mark>М</mark> ·	🗯 🕞			
	A	B	C	D	E	F	G	Н		J	K		
1					<b></b>				•	0			<u> </u>
2													
3		• •									•		
4		NC	otice	the II	ndivi	dual	cells	crea	ated b	by the	e gric	d	
5											U		
ь 7		OT	rows	and	COIU	Imns	. Ea	cn ce	eii is	ident	ITIEd		
8		by	ite e	ماريس	n lot	tor o	nd ra		imho	r D	iaht		
9		- Dy	115 0	Oluli	III IEI	lei a				er. R	igin		
10		no	w, th		rsor i	is on	cell	Δ1					
11			vv, tri			5 011							E
12													_
13 14													
15													_
16													
17		Nc	otice	shee	ts 1	2. ai	nd 3	at th	e bot	ttom.			
18					•	•							
19		_ Di	fferer	nt sh	eets	can l	be us	sed f	or m	onthe	5.		
20											- ,		
21 22		— dit	ferer	nt ent	erpri	ses,	eacr	1 pa <u>c</u>	je, ei	IC.			
23					•								
	▶ N\ Sh	eet1 / She	et2 / Shee	t3 /				<					
	, u (ou	COLLY DUG	ors V price				_						

NUM

Readv



Rows and columns can easily be resized by clicking, holding, and dragging on the line between rows or columns

3 <b>6</b> M	icrosoft Excel	- Book1					
•	<u>File E</u> dit <u>Vie</u> r	w <u>I</u> nsert F <u>o</u> r	mat <u>T</u> ools	<u>D</u> ata <u>W</u> indow	v <u>H</u> elp		
: D	Page Setup					? 🛛	
Ari	Page Mar	gins Header/Fo	ooter Sheet	7			
1	Orientation —	 	••••			Print	By clicking on <u>file</u> ,
23		Portrait		dscape	Prin	it Previe <u>w</u>	
3	Scaling ——					ptions	then <b>page setup</b> ,
5	<u>     A</u> djust to     A	; 100 😂 %	normal size				
6 7	O Eit to:	1 🛟 page(	s) wide by 🛛 1	tall			this menu will
8							appear.
9 10	Paper si <u>z</u> e:	Letter (8.5 × 11	in)		*		appear.
11	Print guality:	300 dpi			*		-
12 13	Fi <u>r</u> st page numb	per: Auto					-
14	Figst page nume	Jer: Auto					
15				_			
16					ОК	Cancel	-
17							

You can customize your page including margins, header/footer, and other sheet options like printer row and column headings or gridlines.

## Using the Format Menu is very important

🛎 Micros	oft Ex	cel - I	Book1							
:📑 Eile	<u>E</u> dit	<u>V</u> iew	Insert	For	nat	<u>T</u> ools	<u>D</u> ata	<u>W</u> indow	J	<u>H</u> elp
i 🗋 💕 l		8	🔔   💞	<b>:</b>	L <u>e</u>	ls		Ctrl+1		
Arial					<u>R</u> o	W			Þ	\$ %
A1		+	fx		⊆o	lumn			Þ	
A		В			Sh	eet			Þ	F
1	ļ				<u>A</u> u	toFormat				
2					Co	n <u>d</u> itional I	Formati	ting		
4					<u>S</u> tγ	/le				
5										

# **Click format, then click cells**

🛯 М	icı	osoft E	xcel-E	Book1						
:2)	Eil	e <u>E</u> dit	⊻iew	Insert	F <u>o</u> rmat	<u>T</u> ools	Data	<u>W</u> indo	ow <u>H</u> elp	Þ
1	Ľ	- 🖬 🔒	13	🔔   🗳	ه ا 🛍 ۹	6 🖬 🕻	🔁 + 🍕	10	- (°I -	😣 Σ
Aria	ıl		•	10 •	BZ	<u>u</u>	Ē≣	= •	\$	% , :
	C	2	•	fx						
		A	В		С	D		E	F	
1			C-11-							
2	Ľ	ormat	cetts							
3	1	Number	Aligni	ment	Font	Border	Patte	aros E	Protection	
4				nene	Samp		Face		TOCECCION	
5		Categor Genera	-		Coamp	ie .				
6		Number		<u>^</u>	l					
7		Currenc								
9		Account Date	ting			neral forr ecific num			)	
10		Time			spe	ecine num	Der Torn	idt.		
11		Percent Fraction								
12		Scientifi								
13		Text								
14		Special Custom		$\sim$						
15		Cascom								
16										
17										
18										
19										
20										
21										
22								ж	Car	ncel
23										
14 4	►	N∖Sh	eet1 /	Sheet2	? / Sheet	3/				

Deady

From this menu you can:

- Format <u>numbers</u> into currency, percent, dates, and other formats
- Format <u>alignment</u> of cell contents
- Format <u>font</u> like in Word

✓ Format <u>borders</u> of cells

## **Creating Formulas**

- The awesome power of Excel lies in the ability to create mathematical and logical formulas in cells that automatically complete many different kinds of calculations.
- With this lesson you will learn how to use the basic math functions of add, subtract, multiply, and divide.

M	Microsoft Excel - Sample Spreadsheets												
:1	Eile Edit View Insert Format Tools Data Window Help												
: 🗅	📴 🖬 🔒 🎒 🕰 🖤 🎎 i 🐰 🗉	- 🖧 -	II - C	୯ 📲 😫 💈	ΣA↓Z↓	🛄 🛷	95% •	0					
Aria	Arial - 12 - B I U = = = = = - * * * * * = = - * - A												
	B1 ▼ f≈ (enter name of project)												
	A B C D F G H I												
1	1 Bill of Materials for: (enter name of project)												
2													
3													
4 Item qty price amount													
5													
6	6 \$ 8.29 \$ 49.74												
7	7 2×4×16' 4 \$ 6.65 \$ 26.60 autosum button												
8	2 × 6 × stud (92-5/8")	32	\$ 3.98	\$ 127.36									
9	2 × 4 × stud (92-5/8")	38	\$ 2.79	\$ 106.02		US	ed fo	or sor	me				
10	16D nails	2	\$ 5.69	\$ 11.38									
11	10D nails	1	\$ 7.14	\$ 7.14		for	mula	as					
12	3" drywall/deck screws	1	\$ 19.22	\$ 19.22						_			
13	#6 × 1-5/8" drywall/deck screws	1	\$ 4.11	\$ 4.11									
14	concrete screws ( $3/16" \times 2-3/4"$ )	1	\$ 18.75	\$ 18.75									
15	2 × 12 × 20'	4	\$ 25.96	\$ 103.84									
16	1 × 8 × 12'	4	\$ 10.97	\$ 43.88									
17	liquid nails	4	\$ 1.96	\$ 7.84									
18	subtotal			\$ 531.23	=SUM(D4:	D18)							
19	tax	7.5%			=D19*B20								
20													
_ <u>_</u> 14													
Read	Ready NUM												

# **Creating Formulas**

- position the cursor in the cell where you want the formula
- you can click the autosum button from the tool bar or type an equals sign (=)
- 3. The autosum button is good if you want to add a series of numbers in a column
- 4. Using the equals sign is good for any of the four basic math functions
- 5. After clicking the = sign, click on the first cell you want to use in the calculation.

## **Creating Formulas**

- Next type a +, -, \*, or / to add, subtract, multiply, or divide.
- 7. Next click on the next cell you want to use in the calculation
- 8. Last, hit enter.
- 9. The following slides are two examples of spreadsheets that use simple formulas
- 10. During the extended classroom activity time of the lesson, you will create one of these two spreadsheets.

	Microsoft Excel - Sample Spreadsheets												
<u>اين</u>	Eile Edit View Insert Format Tools Data Window Help												
: 🗅	💕 🖬 🔒 🎒 💁 🖏 🕷 🖷	a 🛍 -	II - C	(° - I 🧕	δ	- <u>2</u> ↓ <u>X</u> ↓   <u>111</u> 43	95% 🗸	0					
Aria	Arial 🔹 12 🔹 🖪 🗾 🙂 🗶 🕫 📰 🕄 🖇 🦻 👘 🔛 🔹 🌺 🗸 🖕												
	B1 ▼ f≥ (enter name of project)												
A B C D E F G H													
1	1 Bill of Materials for: (enter name of project)												
2	Date of Purchase:	(enter (	date)										
3													
4													
5	foam sill plate sealer	1	\$ 5.35	\$ 5.3	35	=B4*C4							
6	2×6×14'	6	\$ 8.29	\$ 49.	74								
7	2×4×16'	4	\$ 6.65	\$ 26.	30								
8	2 × 6 × stud (92-5/8")	32	\$ 3.98	\$ 127.3	36	Notice	the						
9	2 × 4 × stud (92-5/8")	38	\$ 2.79	\$ 106.	32								
10	16D nails	2	\$ 5.69	\$ 11.3	38	formul	as u	Ised	to 🛛				
11	10D nails	1	\$ 7.14	\$ 7.	14		-++	ha hi					
12	3" drywall/deck screws	1	\$ 19.22	\$ 19.	22		ale i						
13	#6 × 1-5/8" drywall/deck screws	1	\$ 4.11	\$ 4.	11	materi	പപ						
14	concrete screws ( $3/16" \times 2-3/4"$ )	1	\$ 18.75	\$ 18.	75	materi	a13						
	2 × 12 × 20'	4	\$ 25.96	\$ 103.	34		/						
16	1 × 8 × 12'	4	\$ 10.97	\$ 43.	38								
17	liquid nails	4	\$ 1.96		84								
18	subtotal					=SUM(D4:D18) 🎽							
19	19 tax 7.5% \$ 39.84 =D19*B20												
20	20 grand total \$ 571.07 =SUM(D19:D20)												
-14 14 - 4	A A N Bill of Materials / Personal Budget / Sheet 3 /												
	Image: Bill of Materials / Personal Budget / Sheet 3 /												

	Microsoft Excel - Sample Spreadsheets												
:2	Main File Edit View Insert Format Tools Data Window Help Type a question for help ▼												
Ari	Arial 🔹 12 🔹 🖪 🗾 🛄 🖺 🧮 🚟 🔤 🛸 🖇 🦻 號 🎲 🏥 🐺 🖓 🕶 🚣 🗸												
_	B1 ▼ f (enter name)												
	A B C D E F G H												
1	Personal Monthly Budget for:	(enter name)											
2	2												
3	3 Income Monthly Amount												
4	Allowance	\$ 25.00											
5	Part time job / SAEP	\$ 200.00											
6	Other?												
7	7												
8	Total Monthly Income	\$ 225.00	=SUM(B4:B7)										
9													
10				Notic	e the								
11	Expenses	Monthly Amount			_	• .							
12	Cell phone bill	\$ 45.00		🚬 formu	ılas use	d to							
13	Food	\$ 40.00					_						
14	Recreation/Entertainment	\$ 35.00		– calcu	late the	bill (	ר לכ						
15 16	Clothes Fuel	\$ 30.00 \$ 25.00											
10	College Savings	\$ 20.00		mate	rials								
18	Vehicle Maintenance	\$ <u>15.00</u>											
19	Supplies	\$ 10.00											
20	Total Monthly Expenses		=SUM(B13:B19)										
21	2 1		, , , , , , , , , , , , , , , , , , ,										
22	22												
23													
24	24												
<b>I</b> •													
D	1.												

× N	hicrosoft Ex	kcel - Book	:2									
:1	<u>Eile E</u> dit	<u>V</u> iew <u>I</u> ns	ert F <u>o</u> rmat	<u>T</u> ools <u>D</u> a	ata <u>W</u> indov	w <u>H</u> elp				Type a ques	tion for help	
En.			ABC 10	X 🗈 🕰 ·	- 🍼 👘 -	- (21 - 1 😣	Σ <del>-</del> <u>A</u> ↓	Z↓ I 🌆 🦨	100%	• 💿 📘		
Aria	Δ 🚰 🛃 🖂 🕰 🖏 🖏 👗 τ≧ τ 💞 🖤 - 🔍 -   🤮 Σ - 2↓ 2↓ ΙΨ 4 100% - Ο - Arial - 10 - Β Ι Ψ Ε Ξ Ξ ΞΞ 1\$% % γ 5% 2% Ε Ξ Ξ Γ Δ - Δ - Ε											
1 1115			f <sub>x</sub>			4° 70	∕.00 →.0					
	A	B	C C	D	E	F	G	н	Borders	J	K	
1						I						-
2												
3												
4												
5												
6												
7 8												
9		Rer	nemb	ber to	) revi	ew th	ne too	ol bar	' icor	IS.		
10		-								•		
11		mos	st are	e very	/ SIM	ilar to	) wha	at is u	ISEC	IN		
12				•								
13			ra. 3	Simply	у тю	vein	e mo	use p	DOIL	er		
14			r tha	icon	and	hold	it tha	ro to	000	tha		
15 16				ICOH	anu	noiu			266			
17		nor	n n t	itle (E	zam	nle l	Rorde	are)				
18			, up t		_num							
19												
20												
21												
22												
23	23											
H 4	Sheet1 / Sheet2 / Sheet3 /											

# Have fun using Excel Spreadsheets!