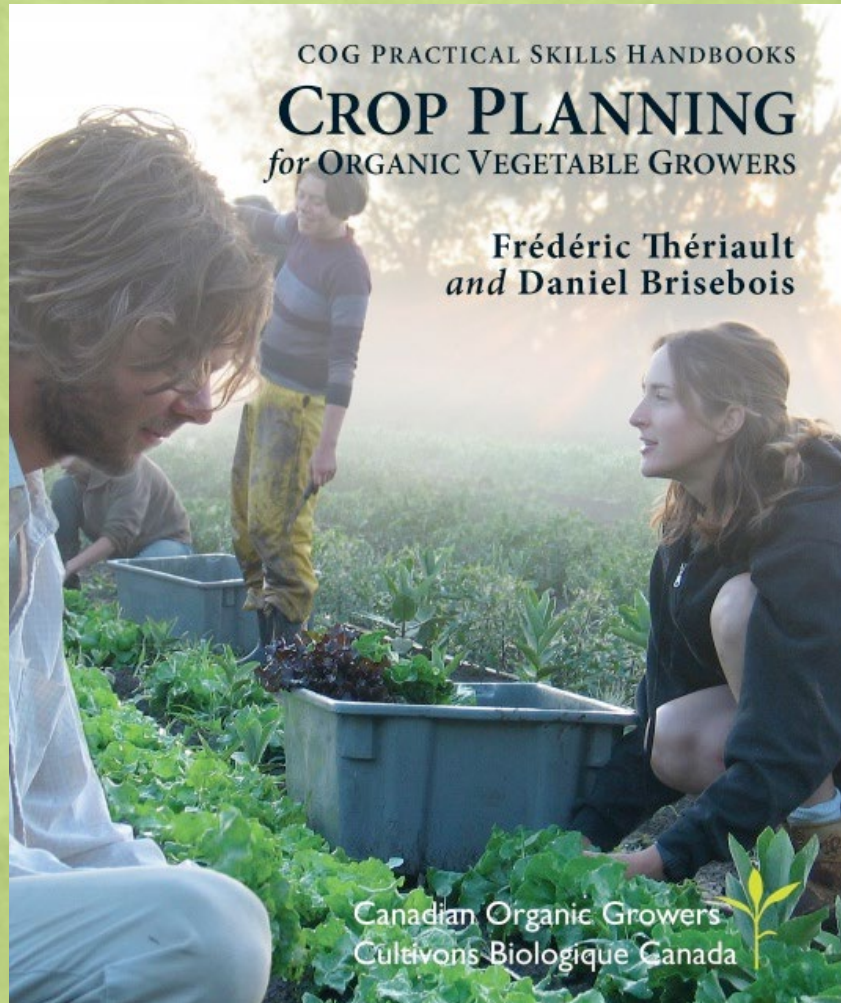


Crop Planning

Viva Farms Practicum in Sustainable Agriculture
Fall 2021

Many Different Approaches



- No “Correct” Way to do crop planning
- Based on System developed by Tourne-sol Cooperative in Quebec



The Step-by-Step Approach to Crop Planning

- Step 1: Set Your Financial Goals
- Step 2: Develop a Marketing Plan
- Step 3: Field Planting Schedules
- Step 4: Generate Crop Maps
- Step 5: Choose varieties
- Step 6: Generate Greenhouse Schedules

Step 7: Fill Out a Seed Order

Step 8: Carry Out The Crop Plan

Step 9: Keep Records

Step 10: Analyze Crop Profitability
(Gross sales analyses)

Step 11: Plan for Next Year

Step 1: Financial Goals

- Objectives
 - Choose your salary target for the season
 - Determine your Gross Sales Target
 - Understand the importance of budgeting and cost minimization

Why Do You Want to Farm?

Step 1: Financial Goals

- Salary as the Starting Point
 - Personal Situation – Debts, Consumption, Savings, Family
- Determine Gross Sales Target
- Beginner's Approach – Salary Objective x2
 - Salary = \$11,000 ; Farm Sales = \$22,000
- Experienced Farmer's Approach- Previous Years Experience
 - Based on Capacity to produce & sell
- Make Sure It is Realistic!

Step 1: Financial Goals

- Make a budget
- Gross Sales – Salary = \$ for Expenses
- Categorize Expenses!

Budget Summary		Bruce & Hanna		Équiterre 38 share	
		\$	%	\$	%
Income		22 000 \$	100%	19 010 \$	100%
CSA Baskets		12 000 \$		19 010 \$	
Farmers Market		10 000 \$			
Expenses		10 835 \$	49%	13 272 \$	70%
Fixed Costs					
Administration		1 490 \$	7%	2 090 \$	11%
Insurance		500 \$	2%	- \$	0%
Land and buildings		1 900 \$	9%	1 688 \$	9%
Financial and Other		1 270 \$	6%	5 156 \$	27%
Operating Expenses					0%
Supplies		1 650 \$	8%	1 783 \$	9%
Greenhouse		1 250 \$	6%	- \$	0%
Field Operations		725 \$	3%	531 \$	3%
Marketing		650 \$	3%	398 \$	2%
Vehicle		800 \$	4%	1 330 \$	7%
Other		600 \$	3%	298 \$	2%
Retained earnings for farmer		11 000 \$	50%	5 120 \$	27%
Net Farm Income		165 \$	1%	618 \$	3%

Step 2: Develop a Marketing Plan

- Objectives
 - Choose your marketing outlets
 - Set goals for your various marketing outlets
 - Create your Projected Sales Chart

Step 2: Develop a Marketing Plan

- What are the Markets you want to sell to?
 - Broad categories, not individual customers
- Choose 1 or 2 Market Channels – Keep it Simple



Step 2: Develop a Marketing Plan

- Set Goals for Each Market Outlet
- Develop Product List and Price List
- Exercise – Choosing Markets and Crops
- Sales Projection Spreadsheet

Step 3: Create Field Planting Schedules

- Calculate the amount of bedfeet required to meet your sales projections and harvest needs for each crop
- Work with 1 crop at a time
- Develop Field Planting Schedule using Field Worksheets

How Often Do you Plant?

Planting Frequency	Crops
Once a season	Tomatoes, Peppers, Onions, leeks, etc.
Once a month	Cuke, Zuke,
Every 2 weeks	Carrots, beets, turnip, beans
More regularly	Lettuce, mesclun, radishes

Formula 1: Determine Planting Date (Field Date)

- Harvest date - DTM = Field Date

DTM (Days to maturity)

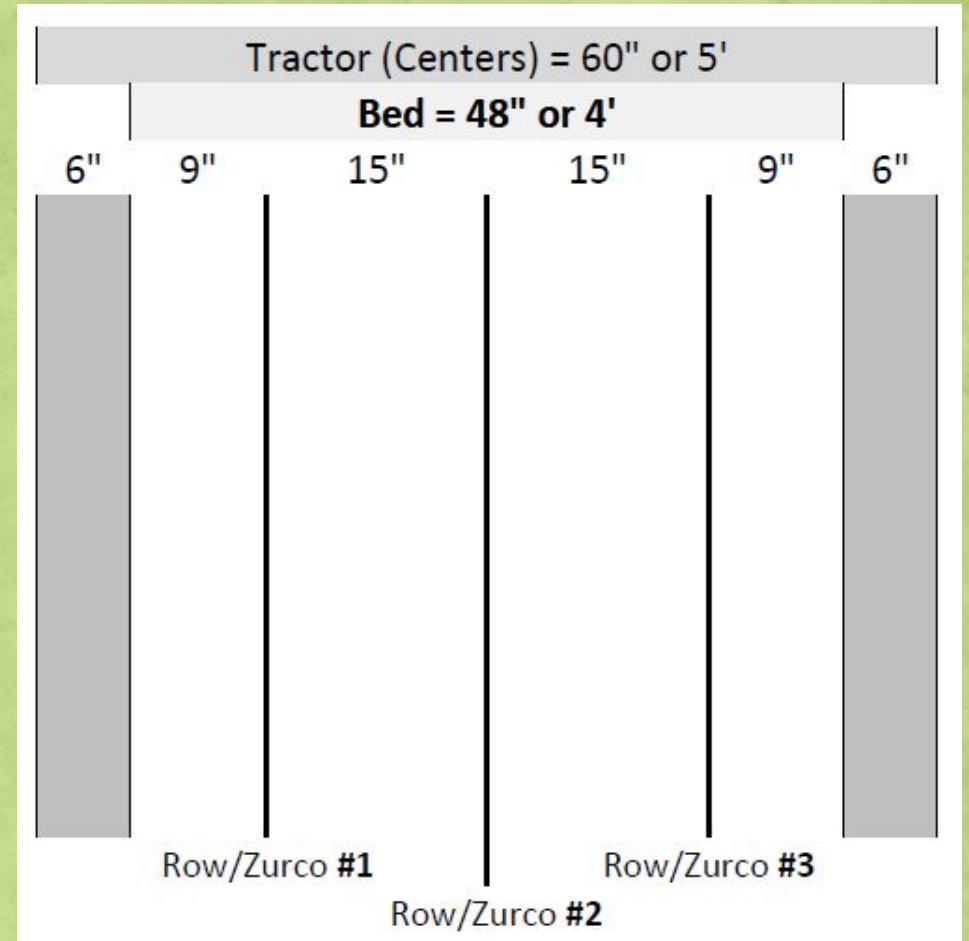
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Formula #2: Determine How Much to Plant

- Harvest Need $\div$ yield $\div$ # rows *
Safety Factor

Answer obtained in "Bedlength"

- Beds & Rows – Row Feet vs Bed Feet



Planning Process

- One crop at a time
 - • A) Needs
 - • B) Date of planting
 - And planting frequency
 - • C) How much to plant



Tomato Example

- **A) Determine needs:** 1130 lbs for the season
- **B) Planting date & freq:**
 - Tomatoes planted once
 - Calculation suggests planting June 4
 - Decision : Planting once on May 28th



Tomato Example (cont'd)

C) Determine how much to plant

- $\text{Harvest need} \div \text{yield} \div \# \text{ rows} * \text{Safety Factor}$
- $1130 \text{ lbs} \div 2.2 \text{ lbs/rowft} \div 1 \text{ row/bed} * 1.3 = 667 \text{ bedfeet}$

Decision : Beds on farm are 100 ft long,
Let's choose to have 7 full beds
700 bedfeet.

Step 3: Field Planting Schedule Summary

- Projected sales used to calculate the number of bed feet for each crop
- Numbers rounded off to logical bed fractions
- One field worksheet for each crop.
- Transfer results of field worksheets to develop a preliminary Field Planting Schedule

Step 4: Generate Crop Maps

- Group crops into blocks
 - Finalize bedlengths for each crop
- Determine where crops will go in the field
- Design your **Crop Maps**
- Choose your crop rotation

Considerations for Making Blocks

- Group Crops into Families (Cheat Sheet)
- Add total number of beds needed for each family
- Start with families sensitive to pest/disease
 - Frequency of planting
 - Fertility requirements
 - Crop management
 - Etc.



What if ?

- I have more crops planned than i have space?
 - Double cropping
 - Revise projected sales
 - Fit extra crops in some of the holes...
 - Any secret corner of land somewhere?
 - Rent more land?
- • I have empty blocks?
 - Green manures / Cover Crops

N Bed / Cama	Crops / Cultivos			
	~60ft.	~60ft.	~60ft.	~60ft.
0	Summer Cover Crop	Summer Cover Crop	Summer Cover Crop	Summer Cover Crop
1	Summer Cover Crop	Summer Cover Crop	Summer Cover Crop	Summer Cover Crop
2	Summer Cover Crop	Summer Cover Crop	Summer Cover Crop	Summer Cover Crop
3	Strawberry	Strawberry	Strawberry	Strawberry
4	Strawberry	Strawberry	Strawberry	Strawberry
5	Winter Squash	Winter Squash	Winter Squash	Winter Squash
6	Winter Squash	Winter Squash	Winter Squash	Winter Squash
7	Peppers	Peppers	Golden Berries	Corn* + Pole Beans
8	Kale	Kale	Flowers	Corn* + Pole Beans
9	Cauliflower/Peas	Cauliflower/Peas	Cabbage/Peas	Cabbage/Peas
10		Lettuce	Turnips	Turnips
11	Tomatoes	Carrots	Carrots	Carrots
12	Eggplant	Beets	Beets	Beets
13	Cucumbers	Spinach	Spinach	Spinach
14	Onions	Onions	Onions	Shallots
15	Garlic	Garlic	Garlic	Garlic

Fit Blocks into Rotation

Block	Crops
1	Solanacea OW Garlic
2	Light B
3	Brassicas Parsley Cilantro
4	Alliums Cucurbits
5	Light A
6	Cover Crop Fall planted Garlic

Step 5 : Choose Varieties

- Choose the varieties you will grow
 - Considerations – DTM, Disease Resistance, Marketability, Climate Adaptation
- Decide the quantities needed
- Create your **Final Planting Schedule**



Final Planting Schedule

[illegible]

Step 6: Create Greenhouse Schedule

- Determine when to seed in the greenhouse
- Calculate how much to seed
- Create your **Greenhouse Schedule**



Step 6: Create Greenhouse Schedule

- Use a **greenhouse worksheet**
 - To determine when to plant
 - How much to plant
 - One for each crop
- Transfer this information to a **Greenhouse schedule**
- Differences between crops that
 - Do not need potting up
 - Need potting up

[illegible]

Step 6: Create Greenhouse Schedule

Figure out GH plant Date

GH plant date = Field date - Days in GH

Figure out # of trays to plant

trays = Bedfeet * rows/bed ÷ inrow spacing * SF ÷ tray size



Potting Up - 2 steps

trays to PU =

Bedfeet * rows/bed ÷ inrow spacing * SF ÷ PU tray size

trays to Seed =

trays to PU * PU Tray Size * SF ÷ seeded tray size

6.1b Tomato GH Worksheet														
							If not potting up		Trays to seed					
							If potting up		Trays to PU		Trays to seed			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Variety	Field Date	GH days	GH Date	Bed length	rows/bed	inrow spacing	GH SF	Tray Size	Calculate trays	Actual trays	GH SF	seeded Tray Size	Calculate trays	Actual trays
Units				bedft		ft								
Estiva	mai-28	42	avr-16	300	1	1.5	1.1	50	4.4	4.5	1.3	98		
New Girl	mai-28	42	avr-16	300	1	1.5	1.1	50	4.4	4.5	1.3	98		
Cherokee Purple	mai-28	42	avr-16	50	1	1.5	1.1	50	0.7	1	1.3	98		
Green Zebra	mai-28	42	avr-16	50	1	1.5	1.1	50	0.7	0.5	1.3	98		

Create Final Greenhouse Schedule

[illegible]

Step 7: Compile a Seed Order

- Convert field and GH seeding needs into quantities of seeds.
- Determine how much seed to buy
- Create your **Seed Order**



To compile a Seed Order

- Use **Seed Worksheets**
 - Determine how many seeds needed/variety
- Convert seed counts into weights
Grams, ounces, lbs
- Select seed packet formats from seed catalogues
- Compile your final **Seed Order**

Calculate how many seeds you need

- for DS crop, seeds needed =
 - $\# \text{ bed feet} * \# \text{ rows/bed} * \text{seeds/ft} * \text{SF}$
- for TP crops, seeds needed =
 - $\# \text{ trays} * \text{tray size} * \text{sds/cell} * \text{SF}$

Final Seed Order

Seed Order											
Year: 2020											
Crop	Variety	Seed catalogue	item number	Organic	Need (# of seeds)	Inventory	Order	Format	Price (\$ US)	Ordered?	Notes
Allium											
Garlic	Music	N/A	N/A	Y	0	Y	0		\$0.00	N/A	Saved from last year's garlic crop
	Killamey Red	N/A	N/A	Y	0	Y	0		\$0.00	N/A	Saved from last year's garlic crop
	Inchillium Red	NGC								Y	
Onions	Talon F1	OSB	79404	Y		0	1	M		Y	
	Red Carpet F1	OSB	68302	Y		0	1	M		Y	
Shallots	Conservor	OSB	69524	Y		0	500	Seeds		Y	
Aster											
Lettuce	Concept	HM	2544-A	Y		0	1/32	oz.	\$2.95	Y	
	Alkindus	HM	2579-A	Y		0	500	Seeds	\$5.40	Y	
Brassica											
Cabbage	Formosa	OSB	69646	Y		0	250	Seeds	\$11.55	Y	
	Farao	OSB	56135	Y		0	250	Seeds	\$10.35	Y	
	Integro	OSB	77105	y		0	250	Seeds	\$11.10	Y	
Cauliflower	Janvel F1	OSB	77211	Y		0	200	Seeds	\$19.00	Y	
Kale	Redbor	OSB	59115	NO		0	250	Seeds	\$11.50	Y	
	Lacinato	HM	2520-A	Y		0	1/32	oz.	\$2.95	Y	
Turnips	Hakurei	OSB	78841	NO		0	3	oz.	\$46.50	Y	
Chenopod											
Beets	Boro	OSB	76969	NO		0	8	M	\$14.56	Y	
	Yellow Sunrise	OSB	77001	NO		0	8	M	\$27.20	Y	
Cucurbit											
Cucumbers	Tasty Green	HM	2433-B	Y		0	50	Seeds	\$4.10	Y	
	Armenian	TERR		Y		0	2	Grams		Y	
Squash, Summer	Romanesco	HM	2895-B	Y		0	1/2	oz.	\$8.80	Y	
Squash, Winter	Honeyboat	HM	2952-B	Y		0	1/2	oz.	\$10.25	Y	
	Red Kuri	HM	2960-C	Y		0	2	oz.	\$14.00	Y	
	Pie Pumpkins	OSGC	N/A	Y		82	0	Seeds	\$0.00	N/A	
	Bule Gourd	OSGC	N/A	Y		15	0	Seeds	\$0.00	N/A	
	Atlantic Giant	OSB				0				Backordered	

What you've got now

- Field Planting Schedule
- Crop maps for each block
- Greenhouse Planting Schedule
- Seed Order



- Now, Go Do It!
- What Could Possibly Go Wrong?

Final Steps...

- Step 8: Implement the Crop Plan!
- Step 9: Keep Records
- Step 10: Analyze Records
 - Determine Profitability in Space
 - Determine Profitability in Time
- Step 11: Plan for Next Year
 - What questions will you ask yourself?

