DATABASE AND SOFTWARE MANAGEMENT TOOLS TO HELP YOUR FARM GROW

TAYLOR MENDELL

FOOTPRINT FARM

STARKSBORO, VT

NEVFC

DECEMBER 14, 2022

FOOTPRINT FARM

Stats

Est 2013

Starksboro, Vermont

Zone 4

1.5 – 3 acres

Year-round mixed vegetable production, greens heavy

Markets

CSA ~150 members, April – Dec

Niche wholesale + some Co-op

WHAT IS A DATABASE

AND WHY I MIGHT WANT ONE

DATABASE

a <u>systematic</u> collection of data that is stored for <u>easy</u> access, management and updating

TODAY'S DISCUSSION

Data collection and storage for future use

Case Studies from our Farm:

Record Keeping, Budgeting,

Crop Planning, CSA management

RECORD KEEPING (DATA COLLECTION)

- Record the data you NEED
  - Obligatory: Taxes, employee info, land/equipment/building records, etc
  - Elective: required by programs or organizations that you opt into. Certifications, grants, elective food safety, etc
  - Voluntary: Cost of production studies, weather tracking, etc

- Record the data in a manner that is EASY and ENJOYABLE (or at least not annoying)
  - Who is doing the recording
  - What information is needed
  - Where does the action/data happen
  - Why is it important
  - When does the data happen
  - How will the data get recorded

FULL SPECTRUM DATABASES ARE SUPER SEXY

■Super sexy crop planning example: Tend

■Full spectrum services: planning, recording, task management, inventory, selling

■Usable on desktop or mobile with multiple users

■Apparently I'm the only one

■Rural internet and cell service

■We needed to input more info than we felt was necessary with the time we had

DATA PHILOSOPHY ON OUR FARM

- Keep data in the lowest and easiest technology possible
  - Who will be looking at it, and how often
  - Will it need to be manipulated in the future

Pen & Paper

Spreadsheet

Database
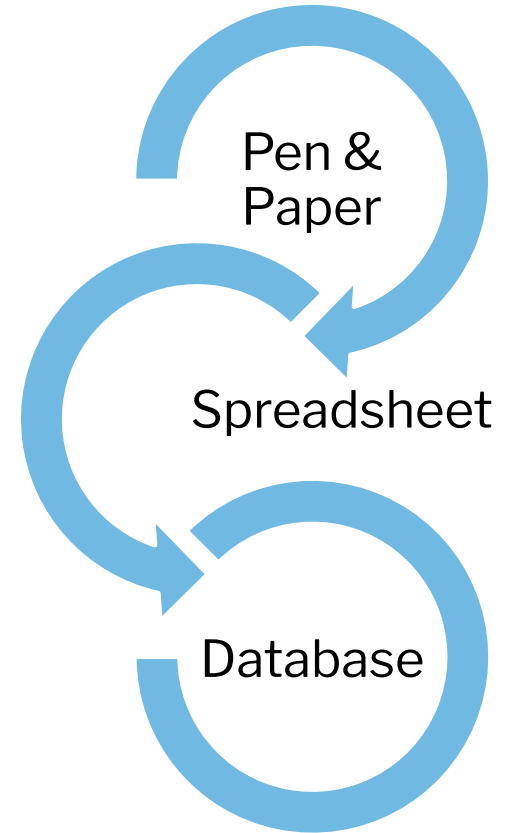
- Our farm's preferred technologies:

  - Powerful off-season planning

  - Easy in-season adjustment

  - Paper in-season recording

    - Easy to read

  - Lowest technology to meet those needs

RECORD KEEPING

Lowest Technology

Photographs

- CSA shares

- Bins headed to farmers market

- Whiteboard with packing numbers

Get fancy and make a folder for all your xyz photos

RECORD KEEPING

Basic Technology

Pen and Paper

Harvest records

FINANCIAL RECORDS

- Obligatory (taxes) ◻ A more powerful tool
- Quickbooks as a database
    - Recorded financial information
    - Stored for future use
    - Easy access for you and whoever else needs to use it
    - Also contains year to year information about customers, expenses, employees etc that you can use to inform future business decisions
- Online vs Desktop
    - Make it easy for those who use it most often
- Budgeting
    - Quickbooks tool isn't awesome for a farm's cash flow
    - Powerful excel workbook custom designed by a bookkeeper/CPA

intuit quickbooks

CROP PLANNING

- Elective, but must be accurate and accessible to keep up with elective certifications, ie Organic

- Lots of required data

  - Dates and amounts of: Seeding, amendments, transplants, side-dressing, cultivation, pest control, harvest, sales (and more)

	Planting Method	Harvest Stage	GH Sow Date	Days In Greenhouse	Field Sow Date	DTM	Harvest Window	First Harvest	Last Harvest	Planting Amount	Location	In-Row Spacing	In-Row Spacing Unit	Rows Per Bed	Flat/pot type
a, Fusion	TP	Full-Size	4/29/2019	21	5/20/2019	40	14	6/29/2019	7/13/2019	50	3: 23	12	in	4	PPT 6" (evo)
	TP		4/29/2019	28	5/27/2019	90	35	8/25/2019	9/29/2019	160	5: 11	24	in	2	72
	TP	Full-Size	4/29/2019	28	5/27/2019	56	28	7/22/2019	8/19/2019	100	5: 10,11	6	in	3	72
	TP	Full-Size	4/29/2019	14	5/13/2019	35	14	6/17/2019	7/1/2019	145	3: 27	4	in	5	PPT 4"
r	TP	Full-Size	5/6/2019	21	5/27/2019	42	14	7/8/2019	7/22/2019	50	5: 13	6	in	4	PPT 6"
a, Fusion	TP	Full-Size	5/6/2019	21	5/27/2019	42	14	7/8/2019	7/22/2019	50	5: 14	12	in	4	PPT 6" (evo)
	TP		5/6/2019	28	6/3/2019	50	21	7/23/2019	8/13/2019	50	5: 16	8	in	3	
	TP		5/6/2019	42	6/17/2019	42	150	7/29/2019	12/26/2019	50	4: 6	8	in	4	288
r	TP	Full-Size	5/13/2019	21	6/3/2019	40	14	7/13/2019	7/27/2019	50	5: 9	6	in	4	PPT 6"
a, Fusion	TP	Full-Size	5/13/2019	21	6/3/2019	42	14	7/15/2019	7/29/2019	75	4: 1	12	in	4	PPT 6" (evo)
	TP		5/13/2019	28	6/10/2019	42	28	7/22/2019	8/19/2019	100	4: 7	18	in	2	
	TP	Baby Leaf	5/13/2019	14	5/27/2019	35	14	7/1/2019	7/15/2019	130	3: 30	8	in	5	
	TP		5/13/2019	21	6/3/2019	42	28	7/15/2019	8/12/2019	140	5: 16	12	in	1	six packs
	TP		5/13/2019	21	6/3/2019	76	24	8/18/2019	9/11/2019	100	5: 19-23	18	in	1	six packs
	TP		5/13/2019	21	6/3/2019	95	24	9/6/2019	9/30/2019	100	5: 19-22	30	in	1	six packs
	TP		5/13/2019	21	6/3/2019	100	22	9/11/2019	10/3/2019	300	5: 19-23	30	in	1	six packs
	TP		5/13/2019	21	6/3/2019	110	8	9/21/2019	9/29/2019	100	5: 19-22	30	in	1	six packs
	TP		5/13/2019	21	6/3/2019	100	28	9/11/2019	10/9/2019	70	5: 19-21,23	30	in	1	six packs
r	TP	Full-Size	5/20/2019	21	6/10/2019	40	14	7/20/2019	8/3/2019	50	4: 2	6	in	4	PPT 6"
a, Fusion	TP	Full-Size	5/20/2019	21	6/10/2019	42	14	7/22/2019	8/5/2019	75	4: 2	12	in	4	PPT 6" (evo)
	TP		5/20/2019	28	6/17/2019	50	21	8/6/2019	8/27/2019	50	4: 6	8	in	3	
r	TP	Full-Size	5/27/2019	21	6/17/2019	40	14	7/27/2019	8/10/2019	50	4: 5	6	in	4	PPT 6"
a, Starfighter	TP	Full-Size	5/27/2019	21	6/17/2019	42	14	7/29/2019	8/12/2019	75	4: 4	12	in	4	PPT 6" (evo)
	~~TP~~	~~Head~~	~~5/27/2019~~	~~28~~	~~6/24/2019~~	~~63~~	~~14~~	~~8/26/2019~~	~~9/9/2019~~	~~100~~	~~4: 7~~	~~18~~	~~in~~	~~2~~	~~72~~
	TP		5/27/2019	28	6/24/2019	73	14	9/5/2019	9/19/2019	100	4: 7	18	in	2	72
	TP	Full-Size	5/27/2019	28	6/24/2019	28	30	7/22/2019	8/21/2019	100	4: 3	12	in	2	72
	TP	Full-Size	5/27/2019	28	6/24/2019	28	42	7/22/2019	9/2/2019	150	4: 4	12	in	2	72
	TP	Full-Size	5/27/2019	28	6/24/2019	56	28	8/19/2019	9/16/2019	100	4: 9	6	in	3	72
	TP		5/31/2019	17	6/17/2019	35	35	7/22/2019	8/26/2019	100	5: 17	18	in	1	six packs
	TP		5/31/2019	17	6/17/2019	35	35	7/22/2019	8/26/2019	80	5: 17	18	in	1	six packs
	TP	Full-Size	6/3/2019	21	6/24/2019	40	14	8/3/2019	8/17/2019	50	3: 11	6	in	4	PPT 6"

CROP PLANNING WITH AIRTABLE

- Cleaner, more fun than Excel
- More customizable for our needs
- Inexpensive (free or $10+/month)
- Easy to read and create usable interfaces
- Link to our crop plan in proceedings write up

Crop Plan | Location | Seed Order | Seed Order: Mixes | Mixes Printable | Value by Crop | Seed Longevity | Seeder | Flat | Table 10 | ▼ | +

☰ Views | ▦ Field Planting Calendar 👥 ▼ | </> 30 hidden fields | ⚏ Filter | ▦ Grouped by 1 field | ⇅ Sort | 🎨 Color | ⫶ | 🔗 Share view

🔍 Find a view | ⚙

	Name	Field Sow ...	Actual...	Location	# Bed ft	# Rows	In-Row	# Trays	Planting Notes	Seeder Plate info
125	Matador	5/16/2022	5/18/2022	4:6	75	4	4	3.92		
126	Dunja	5/16/2022	5/17/2022	HT 2:6 HT 2:1	180	1	18	25.00		

Grid view
Greenhouse Calendar
Field Planting Calendar ✓
Amendment Calendar
GH Calendar
FD calendar
~~Harvest Calendar~~

Create a view ▼

▦ Grid +
▦ Form +
▦ Calendar +
▦ Gallery +
▦ Kanban +
▦ Timeline +
▦ Gantt +

New section +

				WEEK, FD						
▼	**21**	Count 9								
127	Cruiser	5/23/2022		4:10	25	6	1	Infinity		Earthway Cilantro
128	Salad DMR Mix	5/23/2022		2:2 2:1	100	8	1	Infinity	Spring Mix	XY 24, 10R 13F
129	Zesty	5/23/2022		4:13	75	8	1	Infinity	Summer Mix	X 24, 10R 13F
130	Brilliant	5/23/2022		4:12 4:11	150	2	6	2.71		
131	Tadorna	5/23/2022		4:3	100	3	6	2.60	With a stick or dibble, make ...	
132	Salanova Summe...	5/23/2022		4:18	50	4	6	3.59		
133	Gold Coin	5/23/2022		4:3	25	4	6	1.80		
134	Parade	5/23/2022		4:3	25	6	6	4.79		
135	Lizard	5/23/2022		2:1	100	5	4	5.97		

Create an interface ▼

▦ Record review +
▦ Record summary +
▦ Dashboard +
▦ Blank +

				WEEK, FD						
▼	**22**	Count 8								
136	Astro	5/30/2022		4:21	50	7	1	Infinity		X 24, 10R 13F
137	Rainbow	5/30/2022		4:20	50	5	2	Infinity		XY 24, 11R 11F
138	Naval	5/30/2022		4:20 4:19	150	5	2	Infinity		XY 24, 11R 11F
139	Salad DMR Mix	5/30/2022		2:2	100	8	1	Infinity	Spring Mix	XY 24, 10R 13F
140	Head Lettuce 1	5/30/2022		2:3	100	3	12	2.70		
+	Add...	Summe...	5/30/2022	2:3	50	4	6	3.59		

306 records

Crop Plan | Location | Seed Order | Seed Order: Mixes | Mixes Printable | Value by Crop | **Seed Longevity** | Seeder | Flat | Table 10

Views | Grid view | Hide fields | Filter | Group | Sort | Color | Share view

Find a view

Grid view ✔

	Name	Varieties	Longevity	Source
1	Rosaceae	Chandler		https://www.highmowings...
2	Allium	Parade Green Garlic Mus	1 year	https://www.highmowings...
3	Umbel	Cruiser Cruiser Cruiser I	3 years	https://www.highmowings...
4	Brassica	Sora Buscaro BC1611 Z	3 years	https://www.highmowings...
5	Aster	Little Gems - Shoulder Ber	5 years	https://www.highmowings...
6	Chenopod	Bright Lights Red Ace Su	4 years	https://www.highmowings...
7	Solanaceae	NuMex Joe E Parker Sunpe	peppers 2 years, tomatoes ...	https://www.highmowings...
8	Fabaceae	Provider Provider Northe	3 years	https://www.highmowings...
9	Cucurbit	Bristol Bristol Corinto G	4 years	https://www.highmowings...
10	Lamiaceae	Genovese Genovese Pros		
11	Mallow		2 years	https://www.highmowings...
12	Honeysuckle			

Create a view

Grid +
Form +
Calendar +
Gallery +
Kanban +
Timeline +
Gantt +
Section +

Create an inter...

Record review +
Record sum... +

Crop Plan | Location | Seed Order | Seed Order: Mixes | Mixes Printable | Value by Crop | Seed Longevity | Seeder | Flat | Table 10 | +

Views | Grid view | Hide fields | Filter | Group | Sort | Color | Share view

Views panel:
- Find a view
- Grid view ✓
- Seed search audit
- By Seed Company
- Mixes

Create a view
- Grid +
- Form +
- Calendar +
- Gallery +
- Kanban +
- Timeline +
- Gantt +
- Section +

Create an inter...
- Record review +
- Record sum... +

	Name	Planned...	Seed Company	Mix?	Pelleted?	Total Seed Nee...	Seeds/oz	Convert t...	Packet Size	Packet Unit
1	Chandler	Chandler	Nourse			990.0		990.00	1.0	
2	FPF Red	FPF Red	FPF			600.0		600.00		ea
3	Music	Music	FPF			2700.0		2700.00		
4	Russian Red		FPF			0.0		0.00		
5	Bridger	Bridger	Johnnys		✔	690.0		690.00	1000.0	ea
6	Evergreen Hardy White					0.0		0.00		
7	Napoli	Napoli Napoli	High Mowing			32040.0		32040.00	25000.0	ea
8	Red Russian		Johnnys			0.0	8900	0.00	1.0	oz
9	Zesty	Zesty Zesty Ze	Johnnys	🚩		189255.8		189255.76		
10	Li Ren Choi					0.0		0.00		
11	Tokyo Bekana	Tokyo Bekana	Johnnys			225.0		225.00	250.0	ea
12	Carlton	Carlton	Johnnys			225.0		225.00	321.0	ea
13	Red Ace	Red Ace Red Ac	Johnnys			14679.0		14679.00	25000.0	ea
14	Hakurei	Hakurei Hakurei	Johnnys			28908.0	11117	2.60	1.0	oz
15	Sora	Sora Sora Sora	Johnnys			23989.5		23989.50	5000.0	ea
16	Little Gems - Shoulder	Little Gems - Shc	Johnnys	🚩		4071.0		4071.00		
17	Arugula	Arugula Arugula	Johnnys			116138.1	18200	6.38	4.0	oz
18	Spring Raab	Spring Raab Spr	High Mowing			2640.0	17000	0.16	0.5	oz
19	Polbig					0.0		0.00		
20	Abundant Bloomsdale					0.0		0.00		
21	Black Summer	Black Summer B	Johnnys			2089.2		2089.20	1000.0	ea
22	D'Avignon					0.0		0.00		

Crop Plan | Location | **Seed Order** ▾ | Seed Order: Mixes | Mixes Printable | Value by Crop | Seed Longevity | Seeder | Flat | Table 10 | ▾ | +

☰ Views | 🗇 By Seed Company 👥 ▾ | ⟨/⟩ 6 hidden fields | ≡ Filtered by Total Seed Needed, Mix? | ▦ Grouped by 1 field | ↕ Sorted by 3 fields | 🎨 Color | ≡ | ⬆ Share view

Views sidebar:
- 🔍 Find a view ⚙
- ▦ Grid view
- ▦ Seed search audit
- ▦ By Seed Comp... ✔
- ▦ Mixes

Create a view ▾
- ▦ Grid +
- 🟪 Form +
- 🟧 Calendar +
- ▦ Gallery +
- 🟦 Kanban +
- 🟥 Timeline +
- 🟩 Gantt +
- Section +

Create an inter... ▾
- Record review +
- Record sum... +

		Name	Ord...	Restock ...	In stoc...	Total Seed Needed	Product ID	OG?	Pellete...	Seeds/oz	Convert to oz	Packet Size	A
SEED COMPANY ▼ Johnnys	Count 74												
1		Gazelle			✖	1620.0	2550X				1620.00	5000.0	ea
2		Ailsa Craig	✔		✖	2070.0	485JP	✔			2070.00	1000.0	ea
3		Bridger	✔		✖	690.0	2545JP		✔		690.00	1000.0	ea
4		Deep Purple	✔		✖	2484.0	491G	✔			2484.00	5000.0	ea
5		Desert Sunrise	✔		✖	414.0	303				414.00	1000.0	ea
6		Guardsman	✔		✖	2484.0	29			6006	0.41	1.0	oz
7		Monistrell	✔		✖	1035.0	3362G	✔			1035.00	1000.0	ea
8		Patterson	✔		✖	2070.0	3360GP	✔	✔		2070.00	1000.0	ea
9		Red Carpet	✔		✖	1035.0	3402GP	✔	✔		1035.00	1000.0	ea
10		T-448	✔		✖	1242.0					1242.00		
11		Tadorna	✔		✖	780.0		✔			780.00		
12		Gold Coin	✔		✖	1380.0				8000	0.17		
13		Parade	✔		✖	12420.0	3850G	✔			12420.00	5000.0	ea
14		Leonardo	✔		✖	345.0					345.00		
15		Crispino	✔		✖	517.5		✔			517.50		
16		Benefine	✔		✖	793.5	3421GP	✔	✔		793.50		
17		Newham	✔		✖	1150.0		✔			1150.00		
18		Caraflex	✔		✔	62.5	109G	✔			62.50	50.0	ea
19		Carlton	✔		✖	225.0	3872				225.00	321.0	ea
20		Emerald Crown	✔		✖	125.0					125.00		

Crop Plan | Location | **Seed Order** ⌄ | Seed Order: Mixes | Mixes Printable | Value by Crop | Seed Longevity | Seeder | Flat | Table 10 ⌄ | +

☰ Views | ▦ Seed search audit 👥 ⌄ | </> Hide fields | ☴ Filtered by Planned Successions, OG? | ▦ Group | ↕ Sorted by 1 field | 🎨 Color | ⊟ | ⬀ Share view

🔍 Find a view ⚙

▦ Grid view
▦ Seed search au... ✔
▦ By Seed Company
▦ Mixes

Create a view ⌄

▦ Grid +
▦ Form +
▦ Calendar +
▦ Gallery +
▦ Kanban +
▦ Timeline +
▦ Gantt +

Section +

Create an inter... ⌄

	A Name	☰ Planned...	☰ Seed Com...	☰ Audit	A Notes	☑ OG?	☑ Mix?	☑ Pelleted?
1	Bright Lights	Bright Lights Bri	Johnnys	Variety not available	most consistent variety			✔
2	Hakurei	Hakurei Hakurei	Johnnys	Variety not available	HMO has Tokyo market OG			
3	Denali	Denali Denali	Johnnys	Variety not available	good for fall production			
4	Bridger	Bridger	Johnnys	Variety not available	earliest onion available			✔
5	Albion	Albion	Johnnys	Need Pelleted	there is a 1M size and 5M			✔
6	Black Summer	Black Summer B	Johnnys	Variety not available	most consistent variety we've tried			
7	Red Ace	Red Ace Red Ac	Johnnys	Variety not available	No organic available this year			
8	Black Magic	Black Magic Bla	Johnnys	Variety not available	most consistent variety we've tried			
9	Li Ren Choy	Li Ren Choy Li R	Johnnys	Variety not available	consistent, good size			
10	Guardsman	Guardsman	Johnnys	Variety not available	overwinters well			
11	Kolibri	Kolibri Kolibri	Johnnys	Variety not available	overwinters well			
12	Cruiser	Cruiser Cruiser	Johnnys	Variety not available	consistent			
13	Ace	Ace	Johnnys	Variety not available	early ripening			
14	Sungold	Sungold Sungol	Johnnys	Variety not available	fan favorite			
15	Carlton	Carlton	Johnnys	Variety not available	variety			
16	T-448	T-448	Johnnys	Variety not available	overwinters well			
17	Gazelle	Gazelle Gazelle	Johnnys	Variety not available	Cupped leaves, lightweight, better fo...			
18	Winterbor	Winterbor Wint	Johnnys	Variety not available	overwinters well			
19	Bristol	Bristol Bristol B	Johnnys	Variety not available	consistent size, good for MNFC			

Field Planting Calendar

Name	Field Sow Date	Actual Field Date	Location	Bed ft	# Rows	In-Row	# Trays	Planting Notes	Seeder Plate info
Week, FD: 8									
Napoli	2/24/...		GH 6 GH 5 GH 4 GH 3 GH 2 GH 1	120	4	2	Infinity	alongside tomatoes; cover with row cover until germ	XY 24, 11R 11F
Week, FD: 9									
Arugula	3/1/2...	3/8	HT 1:5	45	8	2	8.59		
Li Ren Choy	3/1/2...	3/4	HT 2:1	45	3	4	1.61		
Tokyo Bekana	3/1/2...	3/4	HT 2:1	45	2	6	0.72		
Salanova Spring Mix	3/1/2...	3/4	HT 1:4	90	4	6	2.86		
Sora	3/1/2...	3/4	HT 1:4	90	3	2	6.44	Alongside Salanova 3/1	
Hakurei	3/1/2...	3/4	HT 1:3	90	4	4	4.30	leave room for salanova	
Zesty Spring Mix	3/1/2...	3/8	HT 1:5	45	8	2	8.59		
Spring Raab	3/1/2...	3/8	HT 1:2	90	5	6	3.75		
Week, FD: 10									
Arugula	3/8/2...	3/10	HT 2:4	45	12	1	Infinity		F 24, 10R 11F
Dark Red Norland	3/8/2...	3/16	HT 4:2	90	2	8	Infinity		
Zesty Summer Mix	3/8/2...	3/10	HT 1:2 HT 2:4	45	12 10	1	Infinity	Summer Mix	XZ4, R 10, F13
Arugula	3/8/2...	3/16	HT 2:2	45	8	2	8.59		
Touchstone Gold	3/8/2...	3/13	HT 4:6	90	3	4	3.22		

- Sorted and printed easily from Airtable

- Only print most important information

- Write in the Rain paper

- Necessary tools in pouch in binder

- Actuals are input to Airtable at the end of the year, paper is tossed

CSA CUSTOMER TRACKING

- Accurate sign-up/share information

- Invoicing

- Contact information

- Bio data for retention

CSA CUSTOMER TRACKING + AIRTABLE

- LOVE as a database for historical and bio data

- Too complicated to track complex CSA signups

- Redundancy in sign up and invoicing

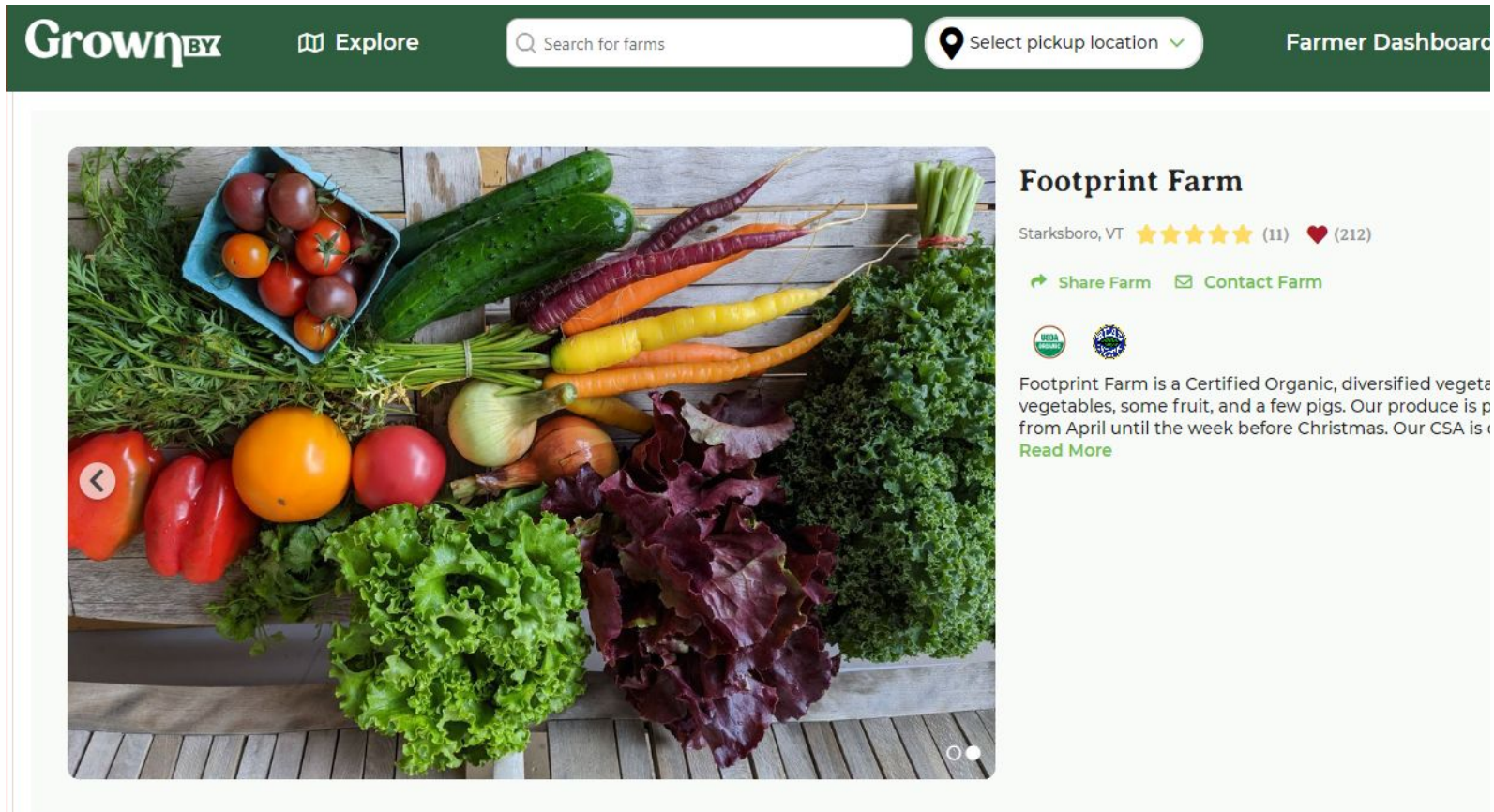 - 220 sign ups, avg 30-60 min admin time per customer = 100-200 hours times $25/hr = $5,000

GROWNBY
CSA MANAGEMENT & ONLINE SALES

- Online CSA signups, management

- Online store for weekly sales

- Price is about 5% per transaction
    - 2022 about $5,000 for CSA shares

- Does not easily export data for retention or budgeting related purposes
    - Working on integrations

THANKS!
TAYLOR@FOOTPRINTFARMVT.COM
FOOTPRINTFARMVT.COM
@FOOTPRINTFARM
@HABITFARMING

TAYLOR MENDELL

FOOTPRINT FARM

STARKSBORO, VT

NEVFC

DECEMBER 14, 2022

BONUS: OTHER AIRTABLE APPLICATIONS THAT WE'VE BUILT

- Amendment calculator

- Cover crop toolbox

- Employee time sheet

- Pork share sign ups

- Layer hen data tracking

- Irrigation log