Maple Syrup Season 2019 – Summary

Ву

Stephen G. Saupe CSB/SJU Biology Department Collegeville, MN 56321; <u>ssaupe@csbsju.edu</u>

Date Prepared: August 5, 2019

Overview: This report documents the activities of the Saint John's Maple Syrup operation during the 2019 season. Saint John's began producing syrup in 1942 making this the 77th year since syrup production began. Saint John's has made syrup in 55 or 71% of these years. In the early days, the monks and their friends would make syrup every two or three years. However, since about 2000 when the Outdoor U program became copartners, the operation is run on an annual basis. In 2019 we installed 1742 taps, collected nearly 20,000 gallons of sap, jugged 523 gallons of syrup, and welcomed at least 2,866 visitors, volunteers, and students to operation. On a per tap basis, we made 1.2 quarts of syrup per tap, which makes this our second-best season on record (the best was 2013 when we produced 1.68 quarts per tap). Even if we hadn't made a drop of syrup, the Saint John's Maple Syrup Operation would still be a huge success because it models, promotes, and encourages the Benedictine values that characterize our institutions.

<u>Staff</u>: The leader of the operation was Br. Walter Kieffer, OSB. The Core Crew included Gary Gillitzer, Jean Lavigne, Al Meiers, Bill Mock, Jim Preusser, Stephen Saupe, and Dan Weber. Jim was a new member of the Core Crew this year. The Core Crew invested 846 hours in the operation (**Table 4**). Saint John's Outdoor University staff members who provided additional support included Sarah Gainey, Kyle Rauch, Jenny Kutter, Vanessa Hensley, and John Geissler.

At least 116 volunteers, including students, faculty, staff, and friends, joined Br. Walter and the Core Crew. These volunteers collectively donated more than 1240 hours to the operation (**Table 4**). The hours are selfreported by the volunteers in our online database. The motivation for volunteers to keep track of hours is that they are rewarded for their participation by receiving an amount of syrup proportional to how much time they donate. Four volunteers – Darrell Ashfield, Larry Huls, Mark Ludowese, and Harold Zip – deserve special recognition because they could always be counted upon to assist Br. Walter and the Core Crew. Adding together the time worked by the Core Crew and all volunteers, at least 2,203 hours (*which doesn't include the countless hours spent by Br. Walter*) went into the production of Saint John's Maple Syrup during 2019 (**Table 4**). This means that there is a minimum of 4.2 hours of volunteer labor in every gallon of Saint John's maple syrup (2203 hr / 523 gal syrup)!

Organizing a large group of people can be a daunting task, but the Outdoor University staff does an amazing job. To alert the public, Sarah (and Jenny, *et al*) send regular "Maple Syrup Updates" by email to volunteers who have signed up to be on the distribution list. To encourage volunteers to read the updates, Sarah includes informational and entertaining "Snippets." (**Table 5**). Outdoor U also made a traditional "Maple Syrup Crew" button to reward volunteers (**Figure 1**).

Tapping: There was no Community Tapping Day this year. It was cancelled for several reasons, not the least of which was the snowy conditions on the scheduled date. Instead, small teams of the Core Crew and others (Maple Syrup course – BIOL 385 – with Kyle Rauch) went out at various intervals and tapped. Tapping began on March 15th. The droplines into the buckets were lengthened to avoid some of the problems in the past. By

the end of the season, there were 1742 taps (**Table 3**), which included 522 buckets/bags, 1120 dropline buckets, and 100 gravity-vacuum lines. All spiles were 5/16ths.

Pulling Taps / Clean Up: The last day of sap collecting was April 16th and taps were pulled beginning that same day (**Tables 1 & 3**).

<u>Sap Production</u>: Sap production records were maintained on scrap boards as is tradition (**Figure 2**). These data are summarized in **Tables 1, 3, 6, & 7**. Sap flow began on March 22nd, which is a little later than average (March 17th; see **Tables 7 & 8**). We pulled taps on April 16th, which was also slightly later than average (**Table 8**). The pattern of sap flow during the 2019 was similar to 2018 (**Figure 3**) and was typical compared to all seasons (**Figure 4 & 5**).

The sap flow season, from first to last sap collection, lasted 25 days (**Table 3**), making it an average season (**Table 8**). However, there were a greater than average number of sap collecting days during this period (15 vs. 12; see **Tables 3** & **8**) which shows that the weather was more conducive than usual to sap flow. As a result, this was a good year for sap production.

We collected 19,960 gallons of sap (**Table 1 & 6**), the second highest annual total in our history. More impressively, this figure doesn't include any ice that was discarded. The largest sap flow on record was in 1985 (21,179 gal), but there more than 200 taps (**Table 6, 7 & 8**). Surprisingly, in 1974 when the monks installed about 3700 taps, the total sap they collected was only 15,379 gals.

The largest amount of sap collected on a single day was 2475 gallons (**Table 1**) which required 11 trips into the sugar bush with the tanker (**Table 6**). We collected 11.5 gallons of sap per tap which was much higher than our average (7.5; see **Tables 7** & **8**).

Our sap production data are especially impressive when you consider that many of the taps are only out for a fraction of the season. Educational groups that visit the operation usually install a few taps. This means that some of the taps are not put out until late in the season. It's not uncommon for school groups to install taps even the day before we pull taps.

Syrup Production: Syrup production data were, like sap data, recorded on a scrap board (**Figures 6 & 7**). Based on these data we produced 587 jugs of syrup (**Tables 2, 6 & 11**) that went into the cellar. Since we bottle into a mixture of various-sized containers (gallon, three-liter, four-liter), this equates to 522.5 gallons of syrup (**Table 11**). In other words, this year we produced about 11% fewer gallons of syrup than the number of jugs that were bottled. The actual difference between the number of jugs and gallons is due to the number of different types of containers that were actually used during the jugging process.

It should be noted that Br. Walter estimates that we produced at least eight additional gallons of syrup that are not included in our production total – this syrup was used at the festival or served to visitors or volunteers in the sugar shack.

By syrup production standards, this was a great year. It was our third highest production on record. In only 1985 (560 jugs) and 2013 (557 gals) did we produce more syrup (**Table 7**). On a per tap basis, it was the second-best season on record – we made 1.2 quarts per tap (**Table 7**). The crew was obviously busy in the shack; they finished 62 batches of syrup (**Table 6**) which is also our second highest total on record. Because

there were so many entries for jugging, it meant that we needed two boards to record all the syrup production data (**Figures 6 & 7**).

<u>Syrup Analysis</u>: Syrup samples from five different bottling days (Mar 30 - 4 samples, Apr 4 - 2 samples, Apr 15 - 2 samples, Apr 20 - 1 sample) were saved for analysis (**Figure 8**). Two additional samples were collected but not labeled so we don't know the actual date they were produced.

The samples were all legal density (66 – 68.9% Brix).

The grade of about half of the syrup samples was amber/rich and the remainder dark/robust (**Figure 8**). Based on the limited number of samples available, we made no golden/delicate or very dark/strong syrup, which is similar to past years (**Figures 8** & **9**). As is typical, the syrup started darker and then got lighter in the middle of season followed by a progressive darkening (**Figure 10**).

The clarity of the samples was good, though most had a little cloudiness at the bottom of the sample jar (**Figure 8**). This may have been due to taking the sample at the end of the jugging. Some of the samples also showed a dark oxidation at the top (**Figure 8**; bottom row middle & far right), which was likely caused by not completely filling the sample containers or the bottles not being sealed completely.

Like many producers in Minnesota this year, we had a problem with a metabolism off-flavor. Five of the 11 samples smelled or tasted like peanut butter, which is the characteristic sign for this flavor. Metabolism off-flavor is associated with seasons, like this one, where it stays cold for a long period of time. The flavor often occurs in early season products. It is likely that particular amino acids accumulate during the prolonged cold period and they give the syrup its off-flavor. Every sample we jugged on March 30th – our third day of jugging – had this flavor, as did one of the samples from April 4th. Because of the limited samples we took, we don't know if the problem continued throughout the season or was primarily an early season phenomenon as is usual. The good news is that the syrup is still edible; in fact, many consumers don't even recognize it as an off-flavor. The bad news is that it is still considered an off-flavor resulting in a commercial grade syrup.

<u>Festivals & Celebrations</u>: We hosted one festival this year on March 30th (Figure 11) with a record-setting attendance. There were 1409 participants (Table 4)!

Publicity/Honors: Articles and publications about the 2019 Saint John's maple operation include the following:

- Anon (2019) Maple syrup harvest report. *Saint John's Abbey e-newsletter for May 2019* (May 6th) see **Figure 16**).
- Anon (2019) Abbey Banner. Spring 2019; p 35.
- WJON AM 1240 (2019) Annual maple syrup festival educates community (video). Available at https://wjon.com/annual-maple-syrup-festival-educates-community-video/. March 30, 2019.
- Zaczek, Alyssa (2019). Maple syrup festival attendees tap into spring sweetness. March 30, 2019. Available at <u>https://www.sctimes.com/story/news/local/2019/03/30/maple-syrup-festival-attendees-tap-into-spring-sweetness/3298969002/.</u>

In addition, an interviewer and reporter from *Minnesota Magazine* visited and will include the festival and operation in their Spring 2020 issue.

<u>Awards</u>: There was no Sweet Predictions (**Table 9**) contest this year. The winner of the Maple Sap Award was Al Meiers, who shouted a curse word in the shack while Sarah was giving a presentation to a group of third graders (**Table 10 & Figure 15**).

Education & the Community-at-large: As always, Saint John's Outdoor University provided a variety of educational opportunities and experiences. To promote the operation and festival, Outdoor U sponsored "Maple Week" from March 25 – 29 (**Figure 12 & 13**). Maple Week featured a series of fun campus activities including: (a) Maple syrup @ Brinner (CSB Gorecki), (b) maple sundaes at the Reef, (c) PRP-sponsored Flapjack Friday at Sexton bus stop, (d) syrup shots at Br. Willies open mic night, and (e) maple syrup lattes offered at the Schu and Clemens coffee shops.

John Geissler taught a "Maple Syrup 101" course as a part of the Landowner Learning Series sponsored by Outdoor U (**Figure 13**). Kyle Rauch also taught the CSB|SJU Natural History of Maple Syrup course (BIOL385). He took over the instruction of this course from Stephen Saupe.

The operation hosted 1,177 $PreK - 12^{th}$ grade students on maple syrup field trips (**Table 4**). This is the most in a season we have ever served! And, this doesn't include the chaperones. In addition, there were 200 CSB|SJU students who were given tours of the operation (i.e., BIOL201 labs) and another 80 students/community in various tours.

If we add up the number of volunteers, core crew members, festival participants, students and other visitors (**Table 4**), nearly 3,000 individuals were involved in some aspect of the Saint John's Maple Syrup Operation! Perhaps the most important feature of the Saint John's Maple Syrup Operation is that it is a model for promoting the Benedictine values of community and stewardship. As an example, Fr. Paul Jasmer visited the operation in mid-April. As a result of his visit, he sent to the Abbey Discussion List on April 15th an email detailing his visit. His email is summarized (*with permission*) in **Figure 16**.

<u>Licensure</u>: In the past, we were licensed by Stearns County Environmental Health Services. It was their duty to inspect our operation because they are responsible for the kitchens. However, in working with the Department of Agriculture, John Geissler reports that our operation does not need to be licensed.



Appendix: Figures & Tables

Tables are presented first, followed by Figures. Unless otherwise indicated, all images, figures, and tables provided by SG Saupe

Table 1. Sap Collection Data – Spring 2019										
Date	Sap collected (gal)									
22-Mar	1155									
23-Mar	1010									
24-Mar	425									
26-Mar	900									
28-Mar	2325									
1-Apr	2475									
2-Apr	825									
3-Apr	1480									
4-Apr	1775									
5-Apr	630									
8-Apr	480									
13-Apr	1305									
14-Apr	1350									
15-Apr	2250									
16-Apr	1575									
Total (gal)	19,960									

Table 2. Syrup Pro Spring 2019	duction Data –
Date	Syrup (gals)
25 Mar	25.6
28 Mar	40.2
30 Mar	40.9
1 Apr	23.4
2 Apr	51.9
3 Apr	37.8
4 Apr	39.7
5 Apr	28
8 Apr	34.7
14 Apr	32.1
15 Apr	60.7
16 Apr	44
17 Apr	53.5
20 Apr	10
Total (gal)	522.5

Table 3: Syrup & Sap Produ Statistics Summary – Spring	ction ; 2019
Spiles (5/16ths)	1742
# sap collection days	15
Sap collection dates	22 Mar –
	16 Apr
Sap Season length (days)	25
Tanker loads of sap	94
Total sap collected (gal)	19,960
Sap per tap (gal)	11.5
Syrup produced (gal)	522.5
Batches of syrup finished	62
Ratio (sap/syrup)	38.2
Sugar concentration (%)	2.3
Syrup (gal / qt) per tap	0.30 / 1.20
Volunteer hours per syrup (gal)	4.2

Table 4: Saint John's Maple Syr	up
Operation Volunteers & Visitors	s – Spring
2019	
Volunteers (counts families as	116
one so total number even	
higher)	
Volunteer hours (including	1241
Harold Zip, Darrell Ashfield,	
Mark Ludowese & Larry Huls)	
Core Crew hours (excluding	846
Br. Walter & SJOU staff)	
Total Volunteer hours	2,203
Festival Attendance (includes	1,409
visitors, staff, volunteers)	
Student tours (<i>pre K – 12</i>)	1177
Student / Community tours	280
(post- secondary; incl. biology	
labs & others)	
Total students / community	1457

Table 5. Sarah's Syrup Snippets from 2019 (Fun facts by Sarah Gainey in her daily update emails sent to the volunteer distribution list)

Mar 11 – Maple syruping is a tradition for many people. Check out this <u>video</u> from Climate Wisconsin about a family in north central Wisconsin and their syruping operation.

Mar 14 - 10 sections of Biology 201 joined us out at the sugar shack this week for their lab on maple syruping. Jealous? Check out this <u>primer</u> by CSB/SJU biology professor and maple syruper extraordinaire Steve Saupe for some of the same information the students received.

Mar 15 - Want to catch the sap flow from your own maple trees? Both <u>Roth Sugar Bush</u> and <u>Fleet</u> <u>Farm</u> carry basic equipment to get you started at home!

Mar 20 - Watching this never gets old...

Mar 22 - Maple syruping is very weather dependent: the earliest date of first sap collection at Saint John's was on Feb 18, 2017; the latest date of first sap collection was April 3, 1974. Our first collection yesterday is very close to our average first sap collection date of March 18. <u>Want to know more?</u> (Outdoor U staff)

Mar 25 – update, no snippet

Mar 27 – Maple Syruping isn't the only awesome thing that happens in the spring!

- MN DNR Eagle Cam: No eggs yet but eagles are hanging out
- <u>Decorah Eagle Cam</u>: 3 eggs laid, 1 broke, other 2 expected to hatch in a few days!
- <u>Illinois Eagle Cam</u>: An rare example of 2 males and 1 female raising young together

Mar 28 – I couldn't find a copy of my favorite maple syrup song, but this one is pretty good too!

Mar 31 – We had some great media coverage of our festival!

- WJON Radio
- <u>St Cloud Times</u> newspaper

April 2 – Everyone's trying to get in the maple market!

- Maple Cheerios
- <u>Sap! Bubbles with Benefits</u>
- Drink Simple Maple Water
- <u>Sugar Shack Stout</u> from Third Street Brewhouse

April 4 – Interested in seeing how other people in the Collegeville area make syrup? The Carlson family runs the Wildwood Ranch and makes syrup just south of Saint John's. Their <u>open house</u> is Saturday from 1-4 and they invite you out to check it out! You can buy their syrup on site and at the Minnesota Street Market in St Joseph.

April 6 – <u>Science Friday</u> this week had a great segment on how sap runs. I love that the professor explaining the process refers to it as 'a little bit of magic.'



"We're so busy watching out for what's just ahead of us that we don't take time to enjoy where we are." - calvin & Hobbes



April 12 – Want some new ways to use maple syrup in recipes? Check out Teresa Marrone's book <u>Modern Maple</u>.

April 13 – update but no snippet

April 15 – Need more information on maple syruping at Saint John's than you even asked for? Then check out our <u>resources</u> page for a list of maple-themed reading!

April 15 (x2) – Some fun facts from the <u>2018 Maple Syrup Annual Report</u> (page 14): For all the years we have records for through the 2018 season:

- Average date of last sap collection: April 11
- Average date taps are removed: April 15
- Latest date sap was ever collected: April 29, 2018

April 22 – Spring is here are so are ticks! Please be sure to check yourself after being outside and check out this <u>website</u> for more information. With kids on field trips, we teach them how to tell if the tick is a boy or a girl then let them name it before we get rid of it. It seems to help calm any fears, as do the <u>stickers</u> we hand out at the end of their time outside!

April 26 – Have any suggestions for syrup snippets to include next year? Let me know by emailing me back by noon on Monday, April 29. Anyone who emails me back an idea will be entered to win a bottle of syrup!! One entry per person please.

May 3 – update, no snippet

2019 Summary: \$	Sap & S	yrup	Data																
# of Taps	1742																		
Taps 5/16th (metal spiles	522																		
Taps 5/16th (drop lines)	1120			_						2019 fest	tival details								
Taps 5/16th (tubing)	100																		
Taps total (actual count)	1742									30-Mar	1409								
Taps total (GPS count)																			
Taps Placed	15-Mar									Ę	1409								7
Taps Pulled	16-Apr																		
Wood Used (cords)																			
volunteers	116	(cour	its fami	lies as o	one so ac	tual total h	igher)												
volunteer hours	1241	É	with Han	old, Mar	-k, Larry,	Darrel - 31	6 hours tota												
Core Crew hours	846																		
festival particip	1409																		
Students preK-12	1177																		
Students post (CSBSJU)	200	(bio li	abs, me	aple cou	rse)		tot	al students 1	457										
Community	80	mix c	of stude	nts and	communi	ity in varior	is tours												
Tapping Dav participants	s not held th	nis vear																	
Svrin Bose	Walter Kie	Mor Oc	a 																
ayi up poss		ć (d																	
Core Crew	846 hours	s Willia	am Moc	ik, Jean	Lavigne,	Gary Gillit:	zer, Al Meie	rs, Stephen 5	Saupe, Dá	an Weber,	Jim Preusse	9r							
Super Volunteers	383	Haro	ld Zip, E	Jaryl Asl	hfield, Ma	ark Ludowe	se& Larry	Huls (not inc.	luding Laı	rry's hours,	_								
		Syr	up Pro	duction									Sap Pro	duction					
DATE Batch	Time	3	Gal	1 4L	5 Gal	Total	Total	Total	Batches	Ttl Jugs		DATE	Full	Partial	Ŧ	Gal partia	GALLON S	AP/DAY	[Sugar]
						(sgul)	(gallons	(Gal/day)	finished	1 /day			Loads	Loads	loads	load			%
25-Mar	1 1:15	-	0	9	0	2	7.1	25.6	ო	28		22-Mar	5	-	9	30	1155		
	2 2:30	2	0	e	0	8	7.1					23-Mar	4	-	5	110	1010		
	3	6	0	4	0	13	11.4					24-Mar	-	-	7	200	425		
28-Mar	4 10:30	ю	0	5	0	8	7.7	40.2	5	4		26-Mar	4		4		006		
	5 11:30	e	0	4	0	7	6.6					28-Mar	10	٢	1	75	2325		
-	5 1:15	2	-	9	0	6	8.9					1-Apr	1		1		2475		
	7 3:30	80	0	e	0	5	9.5					2-Apr	в	-	4	150	825		
	8 5:00	7	2	0	0	6	7.5					3-Apr	9	٢	7	130	1480		
30-Mar	9 9:15	7	2	2	0	5	9.7	40.9	5	46		4-Apr	7	-	8	200	1775		
4	0 12:00	თ	-	0	0	10	8.1					5-Apr	2	-	ო	180	630		
-	1 1:15	4	-	ო	0	œ	7.3					8-Apr	7	-	e	30	480		
~	2:15	4	0	4	0	∞	7.4					13-Apr	5	-	9	180	1305		
, ,	3 3:45	4	-	4	0	თ	8.4					14-Apr	9		9		1350		
1-Apr 1.	4 1:00	e	-	4	0	8	7.6	23.4	e	26		15-Apr	10		10		2250		
ť	5 2:30	2	ო	-	0	ი	8.0					16-Apr	7	-	8		1575		

Table 6: 2019 Summary Data

8.0 7.8

ი ი

0 0

- м N

6 2

2:30 4:15 15 16

2019 Saint John's Maple Syrup – Year End Summary
2019 Saint John's Maple Syrup – Year End Summary

(Table 6 continued)

Apr				1	Apr		+	Anr	5		-	Apr			Apr		-	200	ī.				Apr			-				Apr	+			Apr			+		Apr			4		Apr	Mar	Apr	26	
	-	-	~	-		10	10	10				0	0	c)	0	5	e	000	., "	10	4	4	4	4	7	4	4	4	4	u) U		20	u)	0 10	0, 0	a)	2) (2	9	e									
7 9:15	8 11:0	9 1:15	2:30	1 4:00	22 11:3	1:00	14 Z:3(50 4.UC	7 12:0	1:30	3:30	1:30	3:15	32 4:45	3 11:0	34 12:4	35 1:45	3:00	0/ 0.UC	5:45	10 7:00	11 8:15	10:0	11:0	12:0 5 2:20	4:00	17	89	0	10:0	1:00	33:15	4:30	10:1 11:31	7 12:1	58 2:4£	3:30	6:25	32 11:1						_			
	30	1			0.							- -	4	2	0	5	10				· ·		3	0	0				7	0 0				00	2	~			0			+	35	£ .		n u		,ac
10		0	N	5		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		10	• •	. 0	, «	~		5	0	5	-		• ·			0	1	-			~	0	••			~	<u> </u>	~ C		~			0			-	39	0. 4.	0 0	ວ່ ∞⊂	2	15 51
. 0	4	5	-	4	ი ი ი	ກ ແ -	• -	, r		0	1 10	e	e	e	5	5	2	m ▼	→ t	- ~		-	e	~	~ ~	4 4	0	0	~	00	0 -	3	2			~	2 0	0	0			-	1 17,	0 6.0	0.0	8 Z.č 0 3.0		0 187
, o	0	0	0	0	0						0	0	0	0	0	0	0	0			0	0	0	0	0		0	0	0			0	0		0	0		0	0				0	0.0	0.0	0.0	:	c
, E	13	15	9	ດ	2 5	σ	τ τ			10	15	13	6	6	1	10	9	~ ~	2 ~	- 10	~	7	6	80	∞ {	<u>ν</u> σ.	9 0	7	2	£ 0	υ C	7	ດ :	Ē	2 ∞	9	φσ	0 00	12				58.	15.	2.0	ກີ ດີ	i	
10.	11.	13.	8.6	80	ດີ	5 α	ži Ç	0.0	σ	. 0	6	11.	8.	°.	10.	9.5	80	ö	, u	0 4		5.5	, Ö	6.5	÷,	2 8	8	5.5	9.1	ถ่า	36	9.6		ο σ	ÿÿ	è.	2.0	6.5	10.	Ŧ	av		7 522	0 13.	4 0	,) 	500
, e	9	2	ç	N	- JI	0 0	, c	y u	, r.	, 0	2 ~	2	e	-	0	0	~	~ ~	t a	~		8	-	8		0.0	1 10	5	0		" "	2	~	× α		4	უ ი	20	0	() ()	5	0	.5	5	2	4 t	diff	с Ч
51.9					37.8	1	1	30.7				28.0			34.7			100					50.7							44.0				03.0					10.0	322.5	37.7	ount	uns	max	min	erage ≏dian	erence	Such
S					4			V	r			e			4			u	n				8							2			1	-					-	62.0	4.5	14						
58					41			43	2			31			38			90	60				70							22			:	70					12	587.0	41.9							
																																										SAP DAYS					length	
																																										15	2	16-Apr	22-Mar	3-Apr	25	S
																																										#		7	ر ا	5.0 5	>	o/svrup
																																										LOADS 9			_			38.7
																																										4 TTL			_	-		
																																										SAP 19960		2475.0	425.0	1305.0		sap per t
																																										0		0.0	0.0			an 11.46

Table 7. Data Summary from all years

	interval between tapping (years)		-	7	e +		4	+	4	e	ę	2	7	2	2	6 1	0			-		-								1.6	4.0 32		
	average sugar conc from rule of 86	2.69		2.46		2.06	2.19	2 i	2.39	2.27	2.33	2.75	2.04	2.10	2.24	2.11 1.90	2.70	1.54	1.40	2.71	2.09	2.09	1.93	2.51	2.24	2.14	2.19	2.47		2.2	2.7 31		
	syrup/cord																				21.4	28.9		23.2	25.3 26.0	0.04				25.0 21.4	28.9 5		
	oiter quryes	32.0		35.0		41.7	5 DE	03.0	36.0	37.8	36.9	31.3	42.1	41.0	38.4	40.7 45.3	31.9	44.8 55.7	61.6 40.6	31.7	41.2	41.1	44.6 61 a	34.2	38.4	40.2	39.3	34.7 38.2		40.4 31.3	61.8 31		
	Syrup (qt) per tap	1.20		0.56		0.40	0.81	0.0	0.59	1.15	0.70	1.12	0.86	0.77	0.92	0.60 0.74	0.71	1.08 0.66	0.30	0.48	0.91	0.55	0.42	1.68	0.85	0.88	0.74	0.63		0.77 0.14	1.68 31		
	get tap (gal) per tap	0.30		0.14		0.10	02.0	07.0	0.15	0.29	0.17	0.28	0.22	0.19	0.23	0.15 0.19	0.18	0.27	0.08	0.12	0.23	0.14	0.11	0.42	0.21	0.22	0.19	0.16		0.19 0.04	0.42 31		
	Sap (gal) per tap per Sap (gal) per tap per	9.6		4.9		4.2	0 2	n	5.3	10.9	6.4	8.8	9.1	7.9	8.9	6.1 8.4	5.7	12.1 9.2	4.6	3.8	9.4 4 4	5.7	4.7	14.4	6. F	8.8	7.3	5.5 11.5		7.5	14.4 31		
	collecting day collected per tap per					0.3	90	0.0	0.4	0.6	0.5	0.8	0.6	0.6	0.5	0.3	0.8	1.1 0.9	0.5	0.5	0.8	0.8	0.5	0.8	0.6	0.7	0.4	0.8		0.6	1.1 29		
	collecting day collecting day					281.6	8 80	0.02	50.6	245.8	370.8	34.9	65.4	99.9	25.4	87.8 09.2	87.6	92.6 51.3	07.8	60.0	80.0 33.8	63.6	23.9	02.9	35.4	83.1	09.1	22.5		01.9 07.8	330.7 29		
	average gal sap collectedd					0.1	÷	- ?	2	.0	0.0	5 10	3	5	5	0.0	0.0	0.0	8 0	υ 4	5.0 2	0	0.0	0.0	0.0	0.0	0	0.0		75.1 8 40.0 3	31.0 1: 29		
	qes ylieb nim					175	481	•	350	117	3 175	52	306	9 87	0 87	105	175	175	a 175	87	8 200	80	225	225	220	100	49	425		00	9 0		_
	max daily sap collected					2275.0	1043.0	0.046	1225.0	2100.0	1807.6	1662.5	2100.0	1750.0	1750.0	992.3 1925.0	1138.0	1575.0	525.0 1006.5	1050.0	2025.0	1915.0	1310.0 705.0	2925.0	2250.0	3455.0	1875.0	1705.0 2475.0		1741.	3455.		
	# tanker loads					87.9	0 53	n. 20.0	55.8	121.0	73.4	65.1	82.7	72.0	60.7	42.1 57.7	19.5	37.3 31.5	15.8 28.8	21.0	41.6	53.0	29.0	87.0	57.0	72.0	52.0	42.0 94.0		55.4 14.0	121.0 29		
	(last - 1st collect day) Length sap season					16	24	\$	20	26	4	19	16	19	32	41 24	16	23 18	17 28	27	29	12	23	27	21	45	48	43 25		24.7 9	29		
	Median sap collection date					8-Apr	4-Anr	1 1 1	14-Apr	81-Mar	30-Mar	80-Mar	27-Mar	24-Mar	8-Apr	24-Mar 20-Mar	6-Apr	29-Mar 26-Mar	4-Apr 7-Mar	2-Apr	3-Apr 3-Apr	23-Mar	2-Apr	14-Apr	11-Apr	22-Mar	21-Mar	12-Apr 3-Apr		31-Mar 19-Mar	14-Apr 29		
	date					ž	2	5	j.	lar.	jar (a a	lar	lar	ā	রু রু	'n.	a a	har Mar	i a	2 2	lar	lar Iar	i d	Ŀ,	<u>a</u> <u>a</u>	lar	5. 5.		-Mar -Mar	-Apr 29	3000	20210
	mean sap collection					9-A	2-0	5	13-/	29-N	30-V	31-	26-N	24-N	7-A	24-N 20-N	4-A	28-N 27-N	2-A	1-A	4-4 4-1	23-N	31-0	13-4	11-4	22-4	17-4	8-8 3-4		11 30	10	for to ohe	01 CC GPC
	sveb gnitoslloo qes #					12	ę	2	13	17	12	£	15	4	17	19	~	9	6 6	8 00	5 5	~	σ u	6	÷	0 £	17	15	36(12.4	5° 49	2006)	w 610118
	des veb teel					19-Api	15-Δ0	44-61	22-Api	11-Api	6-Api	10-Api	4-Api	4-Api	22-Api	8-Api 30-Mai	13-Api	9-Api 5-Api	10-Api 10-Api	14-Api	19-Api 13-Api	29-Mai	10-Api	26-Api	22-Api	11-Api	7-Api	29-Api 16-Api		11-Api 24-Mai	29-Api 29	004, 2005 o	מתופו הומי א
	des veb stift					3-Apr	22-Mar	1PIAI-77	2-Apr	16-Mar	23-Mar	22-Mar	19-Mar	16-Mar	21-Mar	26-Feb 6-Mar	28-Mar	17-Mar 18-Mar	24-Mar 13-Mar	18-Mar	21-Mar 17-Mar	17-Mar	18-Mar	30-Mar	1-Apr	28-Feb	18-Feb	17-Mar 22-Mar		17-Mar 18-Feb	3-Apr 29	lumn, i.e., 2	· ofini on pi
	элд дэן ber соок дэу					24.6	26.6	0.02	22.6	32.9	31.6	30.3	28.7	22.0	21.3	15.1 24.8	21.4	29.1 12.4	9.0	19.3	33.5	21.7	25.2 10 F	29.3	31.7	27.3	33.0	37.3		25.3 9.0	37.3 29	hers in co	filler eu un
	avg gal per batch					5.9	8.4	5	6.5	7.9	9.4	7.7	9.1	6.8	7.7	8.2	8.9	9.9 0.0	17.1	10.5	9.5 a a	11.8	13.0	11.6	12.1	8.5	9.1	8.4		9.2 5.9	17.1 29	ar as oth	1000
	batches finished					63	82	ß	42	71	37	47	38	45	36	33	12	17	9	13	24	÷	12	, 84	29	45	29	82	917	31.6 3.0	29	same y	
	# cooking days					15	14	ż	12	17	1	12	12	14	13	12	5	ωœ	9 1	. 9	σα	9	ω c	19	10	14	0	6 4	292	3 10.1	9 29	sure it it	
	# days between first &					or 17	3	5	or 22	or 26	ar 16	or 16	ar 15	ar 19	or 24	ar 23 ar 17	or 24	or 13 or 23	or 12	or 33	or 22	ar 18	0 0	or 24	or 17	ar 25	ar 34	or 37 or 26		or 21.3 ar 9.0	or 37.0	ars, be	
	otch antiv2 acoM					11-A	4.4	5	14-AI	1-A	30-M4	2-AI	27-Mi	27-M	12-AI	27-Mi 25-Mi	11-A	2-A	8-A	11-A	8-A	29-M	-9-9	16-A	16-A	23-Mi	24-M	18-A 6-A		4-A	18-AI	ata for ye	
	durys vab isel	12-Apr		12-Apr		20-Apr	16-Anr	144-01	24-Apr	12-Apr	8-Apr	11-Apr	4-Apr	5-Apr	24-Apr	10-Apr 2-Apr	25-Apr	9-Apr 16-Apr	16-Apr 12-Apr	26-Apr	20-Apr 14-Apr	10-Apr	11-Apr 31-Mar	29-Apr	24-Apr	12-Apr	9-Apr	1-May 20-Apr		31-Mar	1-May 31	ntering a	
Data	First Day syrup	28-Mar				3-Apr	26-Mar	20-1/141	2-Apr	17-Mar	23-Mar	26-Mar	20-Mar	17-Mar	31-Mar	18-Mar 16-Mar	1-Apr	27-Mar 24-Mar	4-Apr 24-Mar	24-Mar	29-Mar	23-Mar	2-Apr 22-Mar	5-Apr	7-Apr	8-Mar	6-Mar	25-Mar 25-Mar		24-Mar 6-Mar	7-Apr 30	note - when e	
V of C	ballu9 sqsT						5-Anr	1 1 1 1 1	6-Apr	3-Apr						0-Apr	7-Apr	5-Apr	6-Apr 9-Apr	1-Apr	8-Apr 3-Apr	1-Apr	A-Mar	6-Apr	2-Apr	8-Apr	1-Apr	9-Apr 6-Apr		5-Apr 4-Mar	9-Apr 20		
mar	Taps placed				_		- Law		Mar	Mar 1		Mar			Mar	Feb	-	-	Mar Mar	Mar	Mar Mar	Mar	- Mar	Mar	Mar	Feb -	Feb .	Mar 1		Mar Feb 2	20 Mar		
Sum	(50,02) 1250 1004						9	<u>b</u>	16-	13-		φ			-61	26-			1 5	-10-	- 14-	5 13-	ţ	6 6	5 15	25-	14-	15-	œ	5 14-	0 19-		
å	(Ise) (object) beau beaW	140		800		379	274	t	758	179	350	384	481	598	331	369 392	413	513	770	380	360	345 4.	615	355 24.	160 12. 701 12	380	355	715 360	342 66.	947 13 440 4.	31 5. 31 5.	+	1
e Syl	total sap collection	1		8		9 15	146	± 0		0 21	8 126	11.	4 14	8 12	7 10(3 10(ų v	က် လ စုစ	4 2	9 9 9	2 9 9 A	5	ό Ω Q	7 19(7 12	5	10.	3 19 8	8 308;	9 1	1 21		
Mapl t 0 2018	(len) autra 16tot	4		24		36	37	ò	27	56	34	36	34	30	27	18	10	9 14	4 0	11	22	13	12 6	55	31	5 8 6	7 26	52 25	7972.	3 25	3 26	aking	nning
resen May 10	sqsT to #	150	06	175(3700	1850	6	1850	1950	2000	1300	1600	1600	1200	1200	909	800	1000	396	100(936	1200	1326	1490	1743	1417	1585	42966	134(370(yrup m	se begi
St. Jof 1942 - p updated:	Year	1940 1941 1942	1943 1944	1945 1946	1947 1948 1949	1973 1974 1975	1976 1977 1978	1979	1980 1981 1982 1983	1984	1986 1987 1988 1989	1990	1991 1992	1994	1995 1996 1997	1998 2000	2002	2003 2004	2005	2007	2008	2010	2011	2013	2014	2016	2017	2018 2019	uns	average minimum	maximur count	years of s	years sinc

Table 8: Summary of St. John's Maple Syrup Statistics: 1942 – 2019

compiled by **Stephen G. Saupe** College of St. Benedict/St. John's University Biology Department Collegeville, MN 56321 *date*: May 10, 2018



This document provides a summary of data from the St. John's Maple Syrup Operation. Ranges are shown in parentheses. Data prior to 1972 are incomplete because they were destroyed when the original sugar house burned down.

<u>General</u>

First season to make syrup	1942
Number of years since St. John's began making syrup	77
Number of seasons during which St. John's has made syrup	55
Average time (in years) between successive syrup-making seasons	1.6

Tapping Data

Average date trees are tapped	7 March (14 Feb – 19 Mar)
Average date taps are removed	15 April (24 Mar – 29 Apr)
Average number of taps (for all seasons)	1343
Average number of taps (prior to 2002)	1613
Average number of taps (since 2002)	1151
Fewest number of taps (& year installed)	150 (1942)
Maximum number of taps (& year installed)	3700 (1974)

Sap Collection Data

Average first date of sap collecting	17 March
Earliest date on which sap was first collected (& the year)	18 Feb <i>(2017)</i>
Latest date on which sap was first collected (& the year)	3 Apr <i>(1974)</i>
Average last date of sap collecting	11 April
Earliest date on which sap was last collected (& the year)	24 March (2012)
Latest date on which sap was collected (& the year)	29 April (<i>2018</i>)
Average number of days during the season on which sap was collected	12.4 (5 – 19)
Average number of days between first and last sap collection (= length of sap production season)	24.7 (9 – 48)

Sap Volume Data

Most sap collected, in gallons, during a season (& the year)	21,179 <i>(1985)</i>
Average sap collected, in gallons, during a season	9947
Average sap collected, in gallons, on a collecting day	801 (308 – 1331)
Most sap collected, in gallons, on a single day (& the year)	3455 <i>(2016)</i>
Average gallons of sap collected per tap	7.5 (2.2 – 14.4)
Average gallons of sap collected per tap per collecting day	0.6 (0.3 – 1.1)

Sugar House & Evaporator Info

Year sugar house constructed (first season of use)	1971 (<i>1972</i>)
Year South addition added to sugar house	1999
Year West addition to sugar house completed and wood shed renovated	2009
Teaching Evaporator (Little Larry) size	2 ft. wide x 6 ft. long
Teaching Evaporator (Little Larry) maximum rated capacity [gallons sap boiled per hour / gallons syrup produced per hour]	20 / 0.5
Production Evaporator (Big Burnie) size	4 ft. wide x 14 ft. long
Production Evaporator maximum rated capacity [gallons sap boiled per hour / gallons syrup produced per hour]	200 / 5

Syrup Production Data

Average gallons of syrup produced during a season (data for all seasons)	257
Average gallons of syrup produced during a season (since 2002)	226
Maximum gallons of syrup produced in a season	560 (<i>1985</i>)
Minimum gallons of syrup produced in a season (& the year)	39 (2012)
Average quarts of syrup per tap	0.77 (0.14 – 1.7)
Wood used (gallons syrup / cord burned)	25.0 (21.4 – 28.9)

Sugar Concentration Data

Average sap/syrup ratio	40.4 (31.3 - 61.8)
Average seasonal sugar content of sap, in percent	2.2%
Lowest seasonal sugar content of sap, in percent (& the year)	1.4% (2005)
Highest seasonal sugar content of sap, in percent (& the year)	2.7% (1990)



Table 9. Great moments in Saint John's Maple Syrup History – A Summary of the Maple Sap Award Winners				
Year	Award Winner	Great Moment		
2019	Al Meiers	Shouting a curse word during a quiet moment of one		
		of Sarah's fourth grade class presentations		
2018	Sarah Gainey	Leaving the parking brake on while nearly a dozen		
		people tried to push her out of a slippery parking place		
2017	Gary Gillitzer	Wrapping the sap wagon around a tree		
2016	Br. Walter Kieffer	Burning Big Burnie's syrup pan		
2015	Br. Walter Kieffer	Getting whacked in the head with a tire jack handle		
2014	Tom Kroll	Forgetting to order desperately need gallon jugs		
2013	Gary Gillitzer	Driving a full sap tank into the woods to collect more		
		sap		

Table 10. Great moments in Saint John's Maple Syrup History –A Summary of the Sweet Prediction Winners

Year	Award Winner	
2019	No contest this year	
2018	Mark Ludowese	
2017	Ashley Walker	
2016	Bill Mock	
2015	Br. Walter Kieffer & Al Meiers (tie)	
2014	Br. Walter Kieffer	
2013	Bill Mock	

Table 11: Analysis of Actual Syrup Production during the 2019 Season				
Container size	Number Jugged	Volume (gallons)		
4-liter glass jug	177	187		
3-liter glass jug	359	285		
Gallon glass jug	51	51		
5-gallon plastic pail	0	0		
Total	587	523		



Figure 1. 2019 Crew Button prepared by Outdoor U for maple syrup volunteers. Image by Sarah Gainey.

2019 raw 3/22 UHT +309 3/23 1111 + 1109 3/24 1+2009 3/26 11/1 3/28 4# 4# +759 4/1 14 4# 1 4/2 111 + 1509 4/3 130 ### 1 4/4 ### 11+200 9 4/5 11 +180 9 +185 305 113 144 +180 g 14 447 1 15 447 147 116 447 11 +50g

Figure 2. Sap Collection Board from 2019. Image by Jean Lavigne and Br. Walter Kieffer.



Figure 3. Graphs comparing sap flow during the 2018 & 2019 maple seasons.



Saint John's - Sap Collection Days: 1972 - 2019

Figure 4. Sap flow pattern over all seasons.





Figure 5. Average sap collected on a given day in the Saint John's Sugarbush.

ynup DATE B TIME 36 GAL TOTAL 3/25 1:15 2:5 13-28 15:30 3 11:30 3 1:15 2 3:30\$ 9-72 5.00 3/30 9:15 l 12 12 1:15 l 2:15) 3:45 g J 4/2 9:15 Y ġ 1:15 10 9/5

24: 10:30 3:30 1:30 \$ 5 34 12:15 36 3:00 2 4/15 10:00 11:00 12: ...

Figure 6. Syrup production on scrap lumber – Board 1. The image was divided in half to fit on this single page. Image by Jean Lavigne and Br. Walter Kieffer.

587 195

Figure 7. Syrup production on scrap lumber – Board 2. A second board was needed because of the large volume of syrup produced. Image by Jean Lavigne and Br. Walter Kieffer.



Figure 8. Maple syrup samples from 2019 (top row - batch 1; middle row - batch 10, 11, 12; bottom row - batch 27, 29, 45, 47, 62).



Figure 9. Color grade of the maple syrup samples from 2019.



Figure 10. Syrup grades produced during the season at Saint John's.

Page | 22



Bonfire | Live Music |Tree Tapping | Kids Activities| Syrup Cooking Sap Collecting | Maple Syrup Sundaes | Food Truck



Figure 11. Ad created by Outdoor U for the 2019 Maple Syrup Festival.



Figure 12. Maple Week Activities sponsored by Outdoor U



Figure 13. Ad for the Maple Syrup course taught by John Geissler as a part of the Landowner Learning Series.





Don't miss out on these other great upcoming events!





Figure 15. Maple Sap Award showing the 2019 winner, Al Meiers.

Reply Reply All Groward Mon 5/6/2019 11:20 AM Saint John's Abbey e-newsletter for May 2019 <gfecht@csbsju.edu> News from Saint John's Abbey, May 2019 To Saupe, Stephen



This year's maple syrup season was very good! Br. Walter Kieffer, OSB, supplied the following totals collected: 587 jugs (either 3 litre, 4 litre, or gallon containers) = 522 gallons of syrup plus an additional 8 gallons for volunteers' pancakes, education samples, festival samples, ice cream sundaes, and maple pops, for a grand total of 530 gallons of syrup. Excellent yield.

The total amount of sap collected was just under 20,000 gallons. A good year and the result of a lot of volunteer hours. Over twenty cords of wood were burned in processing the sap to syrup. Thank you to all the volunteers who assisted with this year's collection and processing.

Saint John's Abbey began making maple syrup in 1942. Today, hundreds of volunteers help tap trees, collect sap, and cook the syrup each spring. With the help of Saint John's Outdoor University, the syrup operation also provides opportunities for education with tours and the annual Maple Syrup Festivals.

History: A Brief Timeline of Saint John's Maple Syrup

1942. In response to sugar shortages during WWII, Saint John's begins making maple syrup from sugar maple trees in the Abbey Arboretum. 150 taps were put out in the inaugural season. The first sugar shack is built by the old ski hill. Trees were tapped once every 2-3 years due to the high amount of work involved, with sometimes as many as 3 700 taps in a season



Figure 16. Abbey e-newsletter featuring the Maple Syrup Operation.

Figure 16 continued

History: A Brief Timeline of Saint John's Maple Syrup

1942. In response to sugar shortages during WWII, Saint John's begins making maple syrup from sugar maple trees in the Abbey Arboretum. 150 taps were put out in the inaugural season. The first sugar shack is built by the old ski hill. Trees were tapped once every 2-3 years due to the high amount of work involved, with sometimes as many as 3,700 taps in a season.

1970. Sugar shack burns down under suspicious circumstances. A new sugar shack is built at its present location and a used evaporator is bought to aid in syrup cooking. Records of maple syrup production between 1942 and 1970 were lost in the fire.

1974. The highest number of taps were installed (3700). Also the year of the latest date of first sap collection of the season (April 3).

1985. Most sap collected, in gallons, during a season (21,179). Also highest number of gallons of syrup produced in a season (560).

1996. A small addition is added to the south side of the sugar shack for better wood storage and easier access for loading wood into the evaporator.

2002. Saint John's Outdoor University (formerly Saint John's Arboretum) is given joint responsibility for the maple syrup operation to increase education outreach, coordinate volunteers, and assist with making syrup production an annual occurrence at Saint John's.

2009. The south addition to sugar shack was added to increase educational space for sugar-shack tours.

2012. An early (too) warm spring! Lowest number of gallons of syrup produced in a season (39).2013. With the help of generous donors, the abbey purchased two new evaporators. The production

2013. With the help of generous donors, the abbey purchased two new evaporators. The production evaporator, "Big Burnie," can boil sap at a rate of 175-200 gallons per hour. A smaller evaporator, "Little Larry," was purchased for educational purposes. It can be fired with much smaller quantities of sap, making it possible to have sap cooking during most tours throughout the season.

2017. Year the earliest date of first sap collection has occurred (Feb 18).















Figure 17. eMail by Fr. Paul Jasmer to the Saint John's Monastic Community documenting his visit to the Saint John's Maple Syrup operation. Included here with permission.

From: "Jasmer, Paul"
Date: April 15, 2019 at 1:26:44 AM CDT
To: Abbey Discussion List
Subject: some photos taken out in the sugarbush after and before the blizzard

Dear Confreres,

Here are some pictures I took out at the sugarbush, on the Palm Sunday afternoon (when I was out there collecting sap), and also a couple photos from when I visited out there on April 4 (before the recent blizzard).



So you may note what the current taps look like on the trees, they appear to be plastic. When I first worked in the sugarbush in the mid 1970s, the taps were metal, from which the pails were hung.



Tubes run from the taps into the plastic buckets. In this photo, you can see the shadow of my hands in the upper right corner as I was holding the camera and snapped the shutter. I had already emptied the bucket into the blue collection barrows before taking this photo. My impulse was to empty the pail first.



There were several people working in the sugar bush on Palm Sunday afternoon, some of whom I took unidentified photos of. These three sap collectors are walking across the "dam" – probably, originally a beaver dam made into a forest road.



Two sap collectors emptying sap into a blue barrow, from which sap in drawn into the tank on the tractor trailer.



Two men riding on the back of the tractor trailer which is used for hauling the collected sap to the cook-house.



I entered and left the forest through this fieldstone entrance.



Here is what the sugar bush looked like on April 4, before the blizzard. After walking a ways through the sunny woods, I finally arrived to where the tapped trees begin. If you survey this photo, you may count up to 12 or 13 buckets catching dripping sap from the taps.



Blue barrels are placed throughout the sugar bush. It's hearty exercise carrying 5-gallon pails, and dumping the sap into the barrows, as I had recalled doing the 1970s! A tractor pulling a wagon with a tank mounted on it, drives up to the blue barrows stationed throughout the sugarbush, and a hose powered by a motorized pump draws the sap out of the barrows and into the white tank on the wagon.



The tractor pulling the wagon drove back to the cooking shack and up on the earthen mound from where the sap is drained out of the white tank and into a holding tank that feeds the cooker in the shack.



Here is the cooker in the shack. The wood is loaded through the double doors, and ash is shoveled out from the chamber beneath.



Here's part of the firewood collection. Brother Walter told me they burn that whole amount of wood in one day! The fire that cooks the sap reaches up to 900 degrees Fahrenheit! Those are my gloves on the right which I removed for taking this picture. Then to the left, you note a door that is labelled, "SARAH'S SHED" from where I picked up and returned the pails.

The last picture below shows me cooking pancakes with Kathy, a board member at the Episcopal House of Prayer on Saturday, April 6 (during the Episcopal House Board retreat). I bought enough maple syrup so all of us at the board meeting could enjoy a savory breakfast. It was even more fun than a lutefisk supper if you can image that! The day followed with engaging and productive discussions as we did strategic planning for Episcopal House of Prayer programming along with our new Director, Dr. Christine Luna Munger.



I never imagined that I would be pressed into wearing an apron with a design printed on it! Then my smile turned quizzical as I was waiting for the camera to click! It was time to flip again – pancakes, that is. One may never quite know how many tables and places will experience St. John's Maple Syrup – a prized treat to be sure!