

Maple Syrup Season 2011 – Summary

report by

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Overview: This report documents the activities of the Saint John's Maple Syrup operation during the 2011 season.

Staff: John O'Reilly, Arboretum Assistant Director of Environmental Education, joined the regular crew consisting of Br. Walter Kieffer OSB, William Mock, Sarah Gainey, Stephen Saupe, Kevin Sittauer, Gary Gillitzer, Al Meyer and Dan Weber. As always, Tom Kroll, Saint John's Arboretum Director, provided logistical, administrative, and technical support.

We were assisted by numerous students, faculty, staff, and friends. We asked volunteers to log the number of hours that they worked either online or in a book at the sugar shack. Although there was a glitch in the online process, more than 150 volunteers contributed approximately 650 hours to the operation (Table 3)! The true total is even higher since this doesn't include school groups who helped collect sap, volunteers who forgot to record their hours, and the hours that weren't logged properly using the online system. Even more remarkably, this figure doesn't include the time spent by the main syrup crew.

We thanked each volunteer with a sample of syrup – from 40 mL to several gallons – depending upon the amount of time they invested. We are strongly committed to keeping our volunteers happy and to recognize them for their service. Without the volunteers, the operation would not be able to function.

Tapping: We tapped trees on Saturday, March 5th. As has become tradition, we held a mini-festival to celebrate the opening of the season. We provided coffee, hot chocolate and pastries for the attendees. The celebration included a blessing by Br. Walter, a brief history of syruping at St. John's, and an explanation of how the tapping process would work. We also gave each participant a "Saint John's Maple Syrup Crew" button. A shuttle at 8:30 AM brought St. Ben's students to the festival since the Link doesn't run that early on Saturday. We had over 100 participants who installed about 800 taps. By the end of the season, we had placed out approximately 1200 taps.

Like last year, on Tapping Day we sent multiple drill crews into the field with cordless drills and spare batteries. Each crew consisted of a tapper with portable drill (and spare battery), a spile-driver with a hammer and bucket of spiles, a bucket runner, a lid runner, and a hanger who placed the bucket and lid on the spile. Br. Walter and Steve Saupe directed the crews in the field. Drill crew leaders included Mike Leedahl, Neva Widmer, Bobby Mandel, Hannah Froehling, and several others. This worked well and we plan to do it again next year. To insure that drill crews correctly identified and tapped sugar maple trees, on the day before the event

we marked each tree for tapping using paintballs. While the majority of the participants placed taps, another crew remained in the sugar house to set up the evaporator.

This year we put out only buckets on tapping day. Then, during the season, we installed bags.

Clean Up: Tuesday, April 12 was the main tap-removal day. On Wednesday, April 13, barrels, bags and hangers were removed from the woods, and the hoses from the sap wagon and other supplies were cleaned and soaked in 10% bleach. Bucket washing day was Thursday, April 14, using the dishwasher in the Refectory which kept participants significantly drier than our previous typical 'bucket brigade' outside the Refectory loading dock. Spiles were cleaned by placing them in a small grout mixer with granite grit and water for 4 hours. The taps were hosed off and any plugged with grit were cleaned out with a wire and rewashed. Bent spiles were straighten or discarded.

Festivals: Once again we held two festivals (March 26 and April 2). As usual, the festivals featured maple syrup sundaes, live music, a children's nature area, tours of the sugarhouse, educational lectures, tapping demonstrations, horse drawn wagon rides, and a Native American area. More than 500 people attended the first festival despite chilly weather and there were about 800 at the second festival.

Publicity: The Arboretum staff maintained a daily blog, posted at the following link: <http://www.csbsju.edu/Arboretum/Stewardship/Projects/LandStewardship/MapleSyrup/Volunteer/DailyUpdate.htm>. In addition, the following publicity/articles about the maple syrup operation appeared:

- Abbey Chronicle. *Abbey Banner*, Fall 2011, p 25.
- Bowen, Amy (2011) Syrup festival taps traditions. *St. Cloud Times*. March 15, 2011.
- Perfect for Two – Community Maple Syrup Tapping. *The Record*. March 4, 2011, p 4.
- Saint John's Maple Syrup Festivals. *Albany Enterprise*, March 16, 2011
- Saupe, SG (2010). Analysis of St. John's Maple Syrup Records: 1942 – 2009. *Headwaters. A CSB/SJU Faculty Journal* 27: 80 – 89.
- Sustainability Tip of the Week. *The Record*, April 1, 2011; p 4 (advertised a maple syrup festival and some facts about the process)
- Thiessen, Emile (2011) Syrup festival provides hands-on opportunity. *St. Joseph Newsleader* Vol 22 (14): 1, 4. April 8, 2011 (<http://www.thenewsleaders.com/syrup-festival-provides-hands-on-opportunity>)
- Tison, Alivia (2011) Columbian leave mountains for Minnesota. *The Record*, April 8, p 3.

Sap/Syrup Production: As is tradition, we maintain our sap and syrup records on scrap boards (Fig 1 & 2). These data are summarized in Tables 1 – 3. In addition, data for all years are summarized in Table 4. During the 2011 season, we collected a total of 5615 gallons of sap on 9 different days. The first day on which there was enough sap to collect was March 18 and the last day of sap collection was April 20 (Table 1). Overall, this was a later season than the previous year (Figure 3), but average compared to all seasons for which we have data (Figure 4). By the end of the season we juggled 126 gallons of syrup, which yields a sap/syrup ratio of 44.6 with a seasonal sugar concentration of 1.9%.

Our yields this year were lower than usual because we lost quite a bit of sap/syrup from leaks in our sap pan. We had filled the evaporator and cooked at least once when the weather turned very cold. The sap remaining in the evaporator from this earlier firing froze solid and split some of the seams of the sap pan. Bill and Walter were able to repair the damage using a food grade sealant, and we were able to limp the rest of the way through the season.

Education: We provided educational tours to numerous students, from pre to high school. CSB/SJU students also were involved, including FYS classes and Biology 221 lab. In addition, individuals from the Arhuacos Indigenous group were given a tour of the operation. The Arboretum also sponsored an 'It's Coming...' campaign to generate interest.

Licensure: We were again licensed by Stearns County Environmental Services. We are proud of licensure and work hard to maintain it. Each year we continue to make improvements to insure licensure. For example, this year we replaced our finishing pan with a new stainless steel one. In addition, we replaced the wooden platform of our syrup lifter with stainless steel. We've insured that all supplies are in plastic storage containers to keep them from being exposed to mice and dirt. Each year we need to call Mr. Hank Schreifels, Stearns County Environmental Services, at the start of the season to schedule a time for him to visit the operation.

Sugar Shack Renovation: The sugar shack is undergoing constant renovation and improvement. Kevin Sittauer is working on a project to panel the ceiling which should be finished by the 2012 season. The floor was resealed at the end of the 2011 season.

Br. Walter's crew built a small 'secret' room for Sarah and the educational staff to house their teaching supplies.

As mentioned above, the sap pan was significantly damaged during the season. Our initial plan had been to have a new pan built to replace the existing one. Drawings with measurements were made by some of Br. Walter's students during the summer to give to a metal fabricator. Unfortunately, the pan is difficult to build and will cost almost as much as a brand new unit. We have begun to look at a variety of alternatives. The plan is to locate and secure a different, likely used, all stainless steel evaporator this Spring. The installation will occur as soon as possible so hopefully it will be fully installed by Fall.

Miscellaneous: Caitlin Kennedy, mother of a St. Ben's student and owner/operator of All Things Herbal, Pequot Lakes (MN), approached us to obtain sugar sand to make soap. We supplied her with some sugar sand from a previous year and she made it into a wonderful soap with a delightful maple fragrance.

Recommendations: *The following is a list of recommendations/wish list the crew made at the end of the season.*

1. On tapping day we need more hammers and more hot chocolate. A shuttle from campus to the shack would be nice.
2. Workers should “stand out” more at festivals (and tapping day)
3. Students should have more discounted prices for the festivals
4. Replace the plywood panels beneath the windows in the sugarhouse
5. Replace the hand-lettered signs identifying the wood types with educational displays with a professionally lettered sign; finish labeling all wood types.
6. Finish the design on the sign above the back door
7. Enclose the area above the double doors near the evaporator
8. Paint or panel the areas on the west side of the shack and permanently mount the past data boards
9. Enclose in wood panels the exposed wall from the original shack
10. Weed around the sugar house
11. Clean up the old railroad tie steps on the north side of the shack so the steps can be used again
12. Replace with old tool cabinet with a smaller one that has just essential tools (other tools can be stored in the shed), then replace it with a display case
13. Replace the wires on many of the pail covers
14. Fix leaky suction hoses on tractor pump
15. Change filters more often on tractor pump
16. Wash buckets in Reef dishwasher at end of season
17. Keep longer lengths of wood-3 feet
18. Keep working on drainage issues at shack during the summer
19. Phone list in shack
20. Refinish benches
21. Install stand in corner of classroom for guest book and volunteer sign up
22. Add something to west edge of roof by tanks to prevent concussions
23. Don’t fill around shack to insure proper drainage
24. Paint interior doors-lighter brown
25. Stain outside of shack
26. Finish drip line on back of wood shed
27. Add whiteboard to shack side of sap bucket shelves
28. Obtain bigger bulk tanks
29. Replace cream cans
30. Obtain a fire shirt/jacket for person doing the firing

Table 1. Sap Collection Data – Spring 2011	
Date	Sap collected (gal)
Mar 18	330
Mar 25	325
Mar 26	225
Apr 1	845
Apr 2	1310
Apr 3	385
Apr 6	750
Apr 7	960
Apr 10	485
Total	5615

Table 2. Syrup Production Data – Spring 2011	
Date	Syrup (gal)
Apr 2	16
Apr 3	34
Apr 7	33
Apr 10	17
Apr 11	26
Total	126

Table 3: Summary – Maple Syrup Season 2011	
# sap collection days	9
Tanker loads of sap	29
Total sap collected (gal)	5615
Syrup produced (gal)	126
Ratio (sap/syrup)	44.6
Sugar concentration (%)	1.93
Number of volunteers	150
Hours of volunteer time (<i>excluding leaders</i>)	650
preK-12 th grade student visitors	

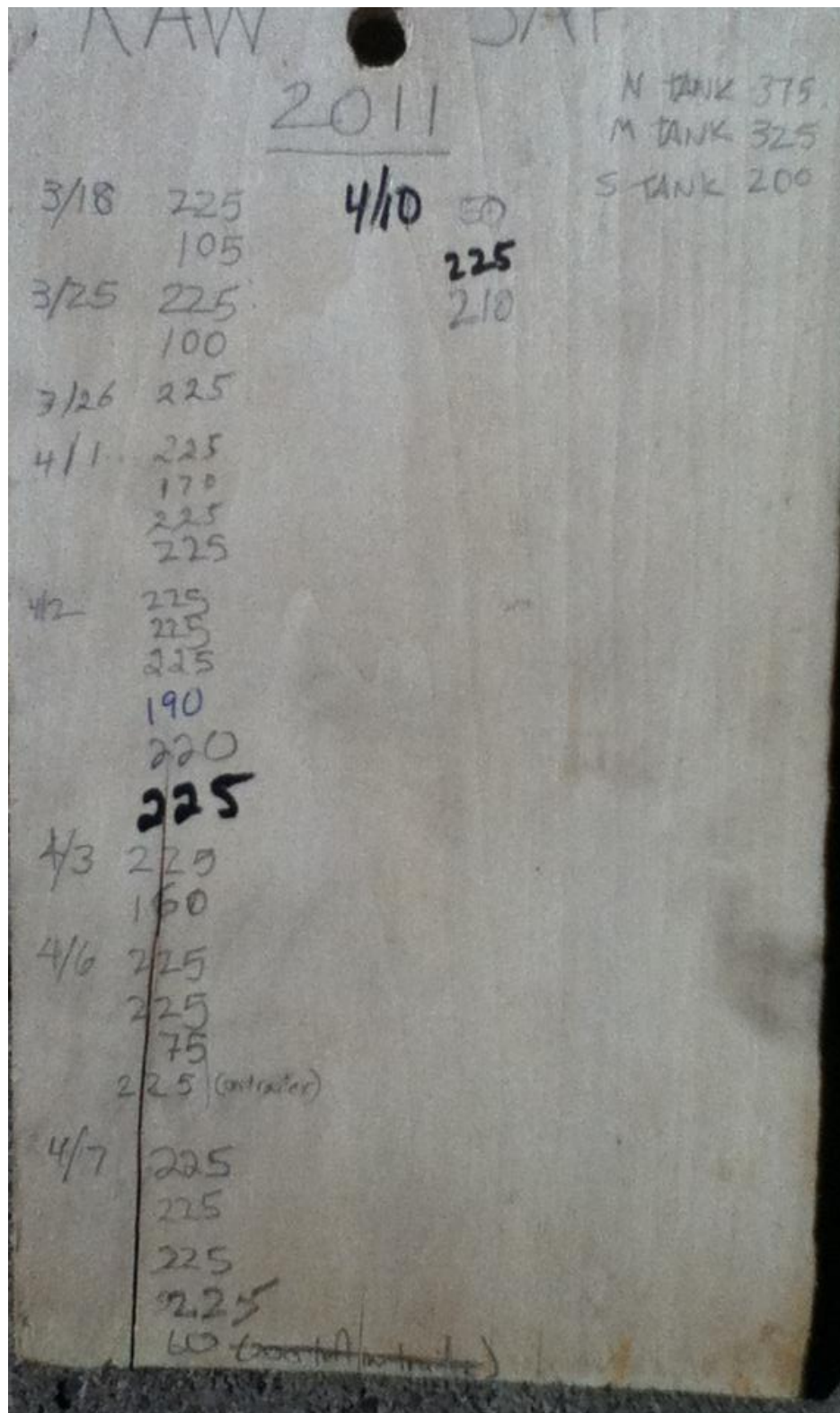


Figure 1. Scrap wood board showing sap collection statistics for 2011 season. Image from Br. Walter Kieffer.

SYRUP 2011

(lost some syrup due to frozen pan)

4/2 - 16 - 6 PM 700 people

4/3 - 12 - 9 AM

12 - 1 PM

10 - 4 PM

4/7 12 - 1:00 PM

12 - 5:00 PM

9 - 9:00 PM

4/10 8 - 11:00 AM

9 - 3:00 PM

4/11 11 - 10:30 AM

7 1:30 (111)

8 3:00 (118)

126

Figure 2. Scrap wood board showing syrup production statistics for 2011 season. Image from Br. Walter Kieffer.

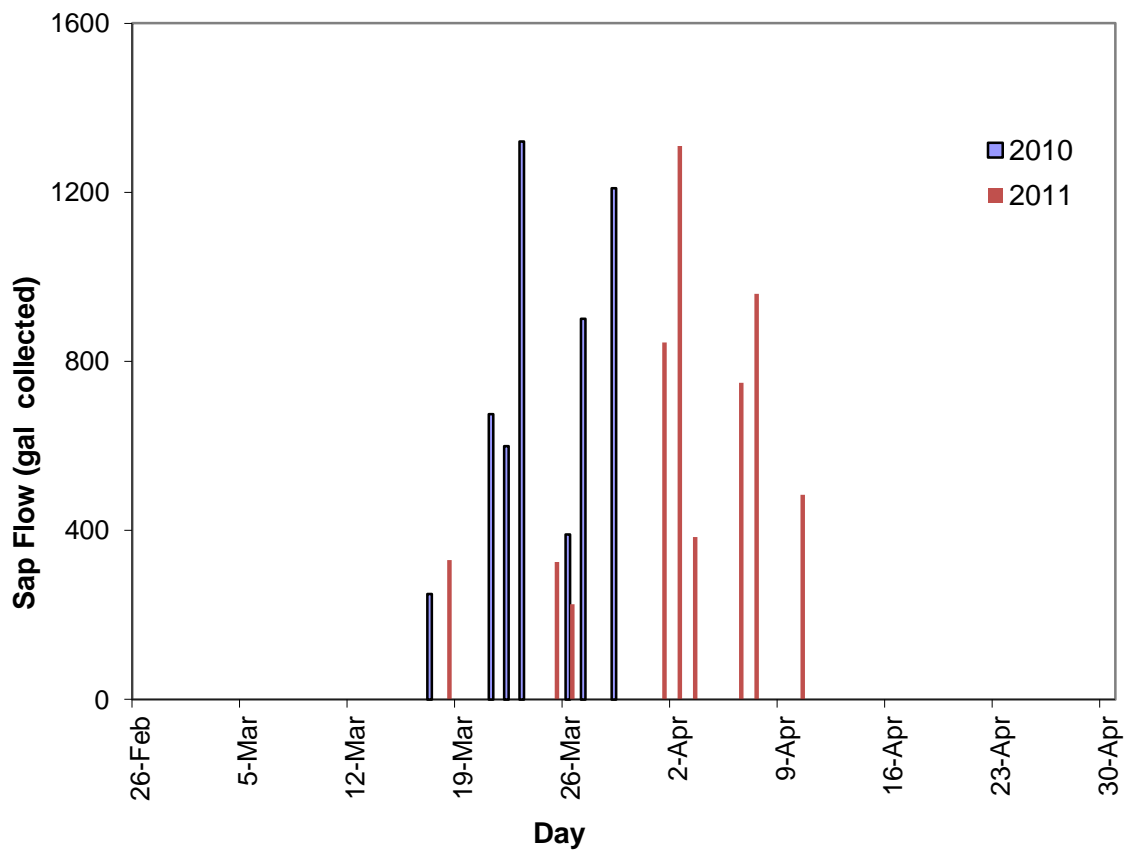


Figure 3. Summary of sap flow data for 2010 and 2011.

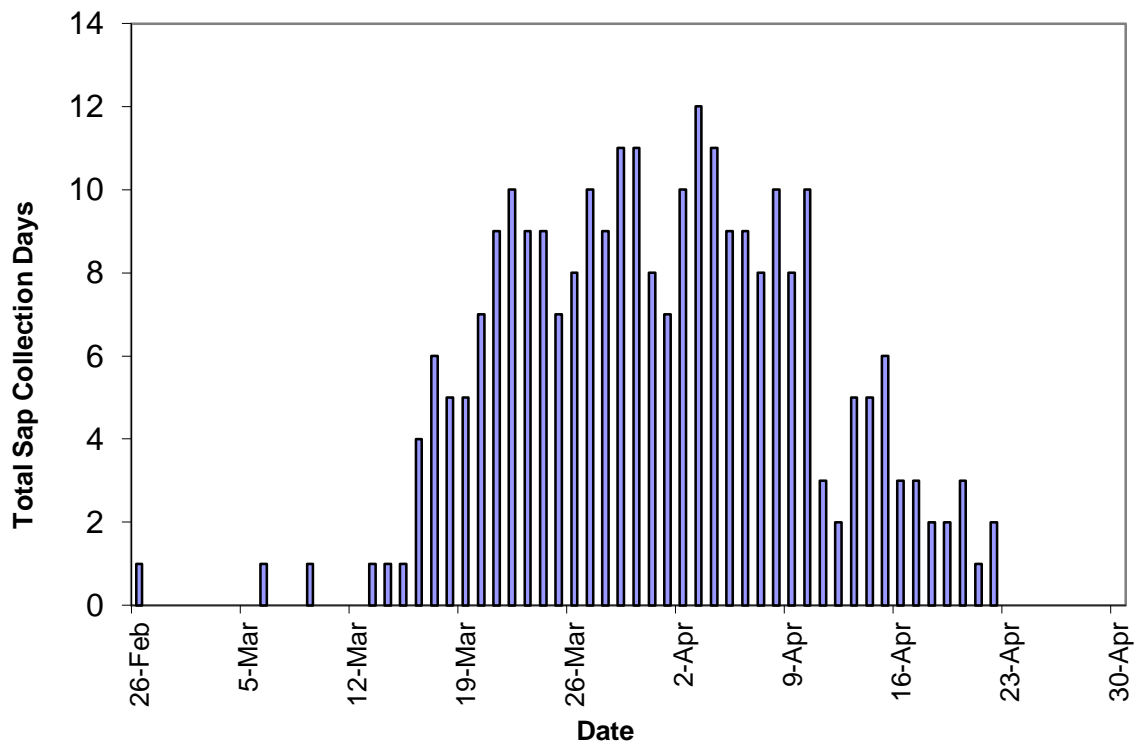


Figure 4. Summary of sap flow data for all years (1942 – 2012) at St. John's

St. John's Maple Syrup - Summary of Data

1942 - present
updated: Feb 9, 2012

Year	# of Taps	total syrup (gal)	total sap collection (gal)	Taps placed	Taps Pulled	first day syrup	last day syrup	Mean Syrup date	# days between first & last	# cooking days	batches finished	avg gal per batch	avg gal per cook day	first day sap	last day sap	# sap collecting days	mean sap collection date	Median sap collection date	Length sap season (last - 1st collect day)	# tanker loads	max daily sap collected	min daily sap collected	average gal sap collected per collecting day	average gal sap collected per tap per collecting day	Sap (gal) per tap per season	Syrup (gal) per tap	sap/syrup ratio	average sugar conc from rule of 86	interval between tapping (years)	
1942	150	45	1440			28-Mar	12-Apr																					1		
1943	900					16-Mar	12-Apr																					2		
1945	1750	246	8600			17-Mar	7-Apr																					3		
1948																											1			
1949																											2			
1951	273	9000				26-Apr																					2			
1953																											4			
1954	800	210				23-Apr																					1			
1958																											4			
1959	800			17-Mar		7-Mar	10-Apr																				1			
1962																											3			
1964																											2			
1966	2200	350	13000																								2			
1968	3100																										2			
1972		16447																									2			
1974	3700	369	15379			3-Apr	20-Apr	11-Apr	17	15	63	5.9	24.6	23-Mar	20-Apr	15	6-Apr	5-Apr		28	94.0	2800.0	175.0	1096.5	0.3	4.2	0.10	41.7	2.06	4
1978	1850	373	14674	19-Mar	15-Apr	26-Mar	16-Apr	5-Apr	21	14	58	6.4	26.6	22-Mar	15-Apr	13	3-Apr	4-Apr	24	83.9	1943.0	481.0	1128.8	0.6	7.9	0.20	39.3	2.19	4	
1982	1850	271	9758	16-Mar	26-Apr	2-Apr	24-Apr	14-Apr	22	12	42	6.5	22.6	2-Apr	22-Apr	13	13-Apr	14-Apr	20	55.8	1225.0	350.0	750.6	0.4	5.3	0.15	36.0	2.39	4	
1985	1950	560	21179	13-Mar	13-Apr	17-Mar	12-Apr	1-Apr	26	17	71	7.9	32.9	16-Mar	11-Apr	17	29-Mar	31-Mar	26	121.0	2100.0	117.0	1245.8	0.6	10.9	0.29	37.8	2.27	3	
1988	2000	348	12850			23-Mar	8-Apr	30-Mar	16	11	37	9.4	31.6	23-Mar	6-Apr	12	30-Mar	30-Mar	14	73.4	1807.8	175.0	1070.8	0.5	6.4	0.17	36.9	2.33	3	
1990	1300	364	11364	9-Mar		26-Mar	11-Apr	2-Apr	16	12	47	7.7	30.3	22-Mar	10-Apr	11	31-Mar	30-Mar	19	65.1	1662.5	52.5	1034.9	0.8	8.8	0.28	31.3	2.75	2	
1992	1600	344	14481			20-Mar	4-Apr	27-Mar	15	12	38	9.1	28.7	19-Mar	4-Apr	15	26-Mar	27-Mar	16	82.7	2100.0	306.3	965.4	0.6	9.1	0.22	42.1	2.04	2	
1994	1600	308	12598			17-Mar	5-Apr	27-Mar	19	14	45	6.8	22.0	16-Mar	4-Apr	14	24-Mar	24-Mar	19	72.0	1750.0	87.5	899.9	0.6	7.9	0.19	41.0	2.10	2	
1996	1200	277	10631	13-Mar		31-Mar	24-Apr	12-Apr	24	13	36	7.7	21.3	21-Mar	22-Apr	17	7-Apr	8-Apr	32	60.7	1750.0	87.5	625.4	0.5	8.9	0.23	38.4	2.24	2	
1999	1200	181	7369	26-Feb	10-Apr	18-Mar	10-Apr	27-Mar	23	12	22	8.2	15.1	26-Feb	8-Apr	19	24-Mar	24-Mar	42	42.1	992.3	105.0	387.8	0.3	6.1	0.15	40.7	2.11	3	
2000	1200	223	10092			16-Mar	2-Apr	25-Mar	17	9	33	6.8	24.8	6-Mar	30-Mar	10	20-Mar	20-Mar	24	57.7	1925.0	175.0	1009.2	0.8	8.4	0.19	45.3	1.90	1	
2002	600	107	3413		17-Apr	1-Apr	25-Apr	11-Apr	24	5	12	8.9	21.4	28-Mar	13-Apr	7	4-Apr	6-Apr	16	19.5	1138.0	175.0	487.6	0.8	5.7	0.18	31.9	2.70	2	
2003	539	146	6519			27-Mar	9-Apr	2-Apr	13	5	17	8.6	23.1	17-Mar	9-Apr	11	28-Mar	29-Mar	23	37.3	1225.0	175.0	592.6	1.1	12.1	0.27	44.8	1.92	1	
2004	600	99	5513		15-Apr	24-Mar	16-Apr	2-Apr	23	8	10	9.9	12.4	18-Mar	5-Apr	10	27-Mar	26-Mar	18	31.5	1575.0	175.0	551.3	0.9	9.2	0.17	55.7	1.54	1	
2005	600	45	2770	5-Mar	16-Apr	4-Apr	16-Apr	8-Apr	12	5	6	7.5	9.0	24-Mar	10-Apr	9	2-Apr	4-Apr	17	15.8	525.0	57.8	307.8	0.5	4.6	0.08	61.6	1.40	1	
2006	1000	124	5031	11-Mar	9-Apr	24-Mar	12-Apr	4-Apr	19	7	7	17.1	17.7	13-Mar	10-Apr	10	28-Mar	2-Apr	28	28.8	1006.3	175.0	503.1	0.5	5.0	0.12	40.6	2.12	1	
2007	965	116	3680	10-Mar	21-Apr	24-Mar	26-Apr	11-Apr	33	6	13	10.5	19.3	18-Mar	14-Apr	8	1-Apr	2-Apr	27	21.0	1050.0	87.5	460.0	0.5	3.8	0.12	31.7	2.71	1	
2008	1000	227	9360	1-Mar	18-Apr	29-Mar	20-Apr	8-Apr	22	9	24	9.5	25.2	21-Mar	19-Apr	12	4-Apr	3-Apr	29	41.6	2025.0	200.3	780.0	0.8	9.4	0.23	41.2	2.09	1	
2009	1287	268	10840	14-Mar	13-Apr	23-Mar	14-Apr	5-Apr	22	8	27	9.9	33.5	17-Mar	13-Apr	13	1-Apr	3-Apr	27	53.0	1915.0	80.0	833.8	0.6	8.4	0.21	40.4	2.13	1	
2010	938	130	5345	13-Mar	11-Apr	23-Mar	10-Apr	29-Mar	18	6	11	11.8	21.7	17-Mar	29-Mar	7	23-Mar	23-Mar	12	53.0	1915.0	80.0	763.6	0.8	5.7	0.14	41.1	2.09	1	
2011	1200	126	5615			2-Apr	11-Apr	6-Apr	9	5	12	10.5	25.2	18-Mar	10-Apr	9	31-Mar	2-Apr	23	29.0	1310.0	225.0	623.9	0.5	4.7	0.11	44.6	1.93	1	
sum	###	6129	26405							205	631					264														
average	1353	236	9499	10-Mar	15-Apr	24-Mar	14-Apr	17-Mar	19.6	9.8	30.0	8.9	23.6	19-Mar	10-Apr	12.0	30-Mar	31-Mar	22.7	55.8	1637.0	169.0	790.9	0.6	7.2	0.19	40.0	2.2	2.0	
minimum	150	45	1440	26-Feb	9-Apr	7-Mar	2-Apr	6-Apr	9.0	5.0	6.0	5.9	9.0	26-Feb	29-Mar	7	20-Mar	20-Mar	12	15.8	525.0	52.5	307.8	0.3	3.8	0.08	31.3	1.4	1.0	
maximum	3700	560	21179	19-Mar	26-Apr	7-Apr	26-Apr	14-Apr	###	17.0	71.0	17.1	33.5	3-Apr	22-Apr	19	13-Apr	14-Apr	42	121.0	2800.0	481.0	1281.6	1.1	12.1	0.30	61.6	2.7	4.0	
count	28	26	26	13	12	26	26	21	21	21	21	21	21	22	22	22	22	22	22	22	22	22	22	21	24	25	25	35		

Some Cartoons that Appeared during the Maple Season that brought a smile

PICKLES



PICKLES

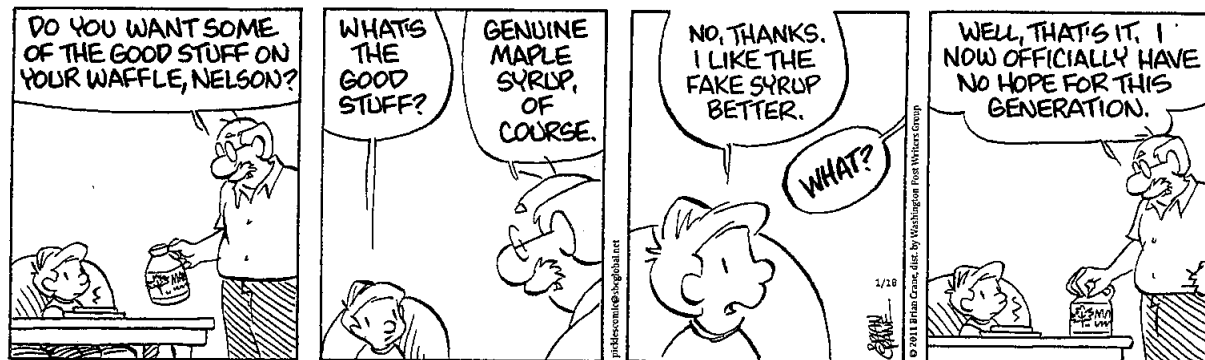




Figure 5. Participants at Tapping Day (*image by SG Saupe*)



Figure 6. Snow at the beginning of the 2011 maple season. (*image by SG Saupe*)



Figure 7. Gary Gillitzer and Br. Walter Kieffer getting the sugar shack ready for syruping. *(image by SG Saupe)*



Figure 8. Damage to a sap sack by squirrels. *(image by SG Saupe)*



Figure 9. Bill Mock driving the sap wagon. (*image by SG Saupe*)



Mission Statement

The mission of the St. John's Maple Syrup operation is to continue the long-standing Benedictine tradition of making maple syrup from the sweet sap of the abundant sugar maple trees (*Acer saccharum*) that grow on campus. Approximately every other year since 1942, the monks and their friends have gathered together to tap trees, collect sap and boil it down to produce a heavenly confection that is a testament to the forest stewardship of the Benedictine community. In addition, we strive to provide opportunities for the St. John's community, including monks, students, and the public at-large, to learn about and participate in the process of making this sustainable forest product.



A Blessing - *by Walter Kieffer, O.S.B.*

Oh, God of all goodness.

In the beginning you created the earth and divided it between the lands and the waters.

On the lands you created all kinds of vegetation; plants and trees of all kinds, and commanded them to cover the earth, providing both shelter and food for all.

Of the multitude of trees you have given us in this forest, you gave us the sugar maple to provide your gift of sweet sap from the healthy trees, and fuel for the cooking from the old and culled trees.

Today, following the rich traditions of our native brothers and sisters, we ask your blessing on this spring ritual of sapping.

May all the tap holes be clean and of a correct depth.

Help us to tap the spiles correctly – hard enough to seal the spile and hold the bag, but without damaging the tree, splitting the wood and losing the sap.

We ask your blessing on this season's collecting, boiling, jugging, cleanup and wood restocking.

May you reward our labors with a fruitful harvest.

Lord, we ask your blessing on all nature.

Protect the woods and waters of our lands for generations to come.

Bless all who come out to work, observe, and visit.

May we be ever mindful of all gifts you provide for us.

We make this prayer as always through Christ our Lord, and in the power of your Holy Spirit.
Amen.