

Report on Sugarbush Enrollment Options in UVA

2016

Vermont Forests, Parks and Recreation

Submitted to:

House Committee on Fish, Wildlife and Water Resources
Senate Committee on Natural Resources and Energy
House Committee on Natural Resources and Energy

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Legislative Mandate

The Vermont General Assembly, as part of Act 64 of 2015, made the following request:

Sec. 50. DEPARTMENT OF FORESTS, PARKS AND RECREATION REPORT; ACCEPTABLE MANAGEMENT PRACTICES; MAPLE SYRUP PRODUCTION UNDER USE VALUE APPRAISAL

On or before January 15, 2016, the Commissioner of Forests, Parks and Recreation shall submit to the House Committee on Fish, Wildlife and Water Resources, the Senate Committee on Natural Resources and Energy, and the House Committee on Natural Resources and Energy a recommendation and supporting basis as to how:

(1) to implement the Acceptable Management Practices for Maintaining Water Quality on Logging Jobs in Vermont as mandatory practices for all logging operations on public and private forestland;

(2) the Department of Forests, Parks and Recreation will enforce Acceptable Management Practices for Maintaining Water Quality on Logging Jobs in Vermont; and

(3) whether maple syrup production on forestland should be required to enroll in the use value appraisal program under 32 V.S.A. chapter 124 as managed forestland and not agricultural land.

This report will address Sec. 50. (3). Sec.50.(1),(2), are addressed in a separate report.

Methods

This report was produced through analysis of the Use Value Appraisal Program (UVA), 32 V.S.A. chapter 124, and consideration of sugarbush management in Vermont by FPR staff including the Private Lands Program Manager, the county foresters, Director of Forests and the Commissioner of Forests, Parks and Recreation and in consultation with the Secretary of the Agency of Agriculture, Food & Markets, the Department of Tax division of Property Valuation and Review, the Vermont Maple Sugar Makers Association, and the Current Use Advisory Board.

Introduction

Maple sugaring is truly part of Vermont's identity. It is important to Vermont's economy, its culture, and its heritage. With proper planning and care, maple sugaring will continue its importance in the future.

While there are written accounts of maple sugaring in North America dating back to 1557, the exact origins of sugaring are unknown. Without written documentation to guide scholars, the history is left to speculation about the discovery of maple syrup and sugar. History also remains silent on whether Native Americans boiled down the sap to maple sugar, or if these techniques were introduced by the French explorers and missionaries. But by the 1700s, Native Americans and European settlers alike were using iron and copper kettles to make syrup and sugar in Vermont.

From those humble beginnings, Vermont has become the leading producer in the United States, in 2015 producing an estimated 41% of the country's crop. In fact, the number of taps, the acres of forestland sugared, the total production, and the value of the syrup produced in Vermont has grown significantly in the past ten years. Since 2004 the number of taps in Vermont has gone from a reported 2,100,000 to 4,490,000 in 2015 and production has gone from 500,000 gallons to 1,390,000 gallons in the same period (2013 produced a reported 1,480,000 gal). The value of this production has risen from approximately 14 million dollars in 2004 to 44.5 million in 2014 (National Agricultural Statistics Service, 2006 and 2015). This increase can be associated with a variety of factors related to improvements in technologies, better markets for maple syrup worldwide, access to capital and perhaps cultural trends. This successful expansion has benefits for landowners, sugar makers, loggers, foresters and others.

The forests that grow the trees that supply the sap for this industry are largely owned by private, family landowners. Unfortunately, there are no accurate estimates for acreage of sugarbushes in the state, however, rough estimates based on tap numbers and land associated with sugarhouses enrolled in Use Value Appraisal Program (UVA) suggests that the acreage is likely between 50,000 to 100,000 acres. Management of forests for sap production often requires harvesting of some trees to support the health of maple trees and the forest as a whole, extensive road networks to permit access for tapping of trees, tubing installation and maintenance to gather the sap. On this significant and growing acreage, the management choices on these lands have an increasingly important impact on the health of Vermont forests and the public benefits they offer, including the role that forests play in minimizing the intensity, frequency and extent of flooding, and the critical service forests provide in filtering and providing clean water. While estimates are rough, it does appear that most, but not all, of Vermont's sugarbushes are enrolled in UVA. Sugarhouses are eligible for enrollment, requiring no exclusion and are untaxed once enrolled. Land entering UVA may be enrolled by landowner choice in either the Forestland category or the Agricultural Land category. For each land use category, use values, are established annually by the Current Use Advisory Board, setting the per-acre valuation for property tax determination, using a separate formula for each land use category, each attempting to describe the income-generating potential of the land as used for agriculture or forestry. In 2015 these values were:

Forest Land \$131/acre (\$98/acre for land greater than one mile from a Class 1, 2, or 3 road.)

Agricultural Land \$289/acre

To determine the Forestland category use value – statewide stumpage values, management costs associated with harvesting, unharvested volumes and current tax rates and discount rates are annually updated in the forestland rate-setting formula. To determine the Agricultural Land use value; crop and pasture land rental rates and current tax and discount rates are plugged in to a similar formula. Once these use-value rates are determined the local property tax rate is assessed against the enrolled land’s use value (see above) instead of the Fair Market Value (FMV) to determine the property tax (See appendices A and B for Use Value formulas). Neither formula incorporates any values related to sugaring.

As an eligible use under either category, sugaring is unique in UVA. All other land conditions/uses are only eligible for one specified category with no opportunity to select among choices.

The opportunity to enroll forestland as a sugarbush in one category or the other has implications for the landowner, the state, town and potentially the land.

Management of Sugarbush Land

To produce maple syrup, maple trees in a forest are tapped and the sap is collected and concentrated through equipment and a boiling process to produce syrup.

It requires a forest with a large number of healthy maple trees to produce sap at a scale that is economically viable. Sap is a forest product, and the forests that produce sap also provides a myriad of other economic and ecological benefits: timber and fuelwood, flood attenuation, filtering of water, wildlife habitat, biodiversity and connectivity, clean air and carbon sequestration. Management of these forests to both produce maple sap and retain these forest-derived benefits is in the public interest. Maintenance of species diversity, recruitment of regeneration, maintenance of minimum stocking, control of invasive plants, pests and pathogens, retention of forest structure, access road maintenance, and tapping practices that preserve individual tree health – can be implemented in ways that support forest health and maintain or even enhance sap production in the long term. Many existing sugarbushes are managed for multiple uses and these benefits are enjoyed by the landowner and valued by the public.

Most sugarbush lands will have at least 40 and up to 120 taps per acre. Over recent years the sizes of sugarbushes have grown significantly. Many sugarbushes now have several thousand taps while some exceed 100 thousand taps. There is a spectrum of management approaches on these lands. Most landowners protect forest health in the management of their sugarbushes while others, through lack of understanding, poor information or exclusive focus on short-term sap production, are tapping small trees to the detriment of their health and productivity, eliminating naturally occurring tree species diversity from large areas, or leaving taps in trees into the start of the growing season. In some cases these choices threaten the ability of the forest to provide public benefits and ultimately reduce the value to the landowner over the long term.

On most sugaring operations the trees are tapped and sap is transported by tubing to a collection point or a sugarhouse where it is concentrated in to syrup. To install and maintain tubing, clear fallen trees, and maintain equipment, access roads are necessary infrastructure and are used throughout the year. On some properties these roads are used heavily by tractors, ATVs and other equipment in the spring when sap is running, as snow is melting, and roads are vulnerable to rutting and erosion. Maintenance of sugarbush access roads is critical for long-term viability of the sugarbush – its operations and its health and productivity. Appropriate timing and intensity of use, stable design and maintenance of these roads is also critical for maintenance of water quality.

Enrollment of Sugarbush in the Forestland Category in UVA

For a sugarbush to be eligible in the Forestland category in UVA it must be part of at least 25 contiguous forest acres enrolling in this category. A map of the parcel must be submitted to the Department of Forests, Parks and Recreation (FPR) and the Department of Taxes, Property Valuation and Review Division (PVR) corresponding to a management plan which outlines the conditions on the property and recommends management activities consistent with the continued productivity and health of the forest. This forest management plan requires approval from FPR and must meet plan and management standards approved by the Commissioner of FPR. The management plan requires a forest stand description with sufficient empirical data on forest and tree conditions, along with a timetable for stand improvement. Among the minimum management standards required of lands enrolled in the Forestland category of UVA is the application of the rules entitled Acceptable Management Practices for Maintaining Water Quality on Logging Jobs in Vermont (AMPs). The AMPs are the proper method for the control and dispersal of water collecting on logging roads, skid trails and log landings to minimize erosion and reduce sediment and temperature changes in streams.

Landowners have an ongoing responsibility to manage the UVA enrolled parcel in a manner prescribed by their approved forest management plan and minimum management standards outlined in the UVA Program Manual. Any changes to objectives or prescribed activities in the plan require submission and approval by FPR of an amendment to the forest management plan. For continued eligibility, a Forest Management Activity Report (FMAR) must be filed with the county forester by February 1 detailing any forestry activities from the preceding year. All forestland parcels are field inspected by county foresters periodically to ensure compliance with the approved forest management plan and to monitor scheduled forestry activities.

Land enrolled in the Forestland category is assessed based on the Forestland use value. In 2015 the use value of the Forestland category was \$131. As an example, under Fair Market Valuation, 100 acres of productive forestland may be assessed at \$1,000/acre. If the sum of all property tax rates is \$2.00/per \$100 of assessed value, the annual tax on this land would be \$2,000. If this parcel was in UVA, it would be listed at \$131/acre and the annual property tax on these 100 acres would be \$262. The savings for the landowner in this case would be \$1,738 per year.

Enrollment of Sugarbush in the Agricultural Land Category

For sugarbush to be eligible in the Agricultural land category it must consist of or be part of at least 25 contiguous acres in active agricultural use; or smaller parcels may be eligible which generate at least \$2,000 annually from the sale of farm crops; or actively used sugarbush land owned by or leased to a farmer. It is worth highlighting that in this enrollment category some sugarbushes, especially small ones that would otherwise be ineligible in the forestland category, may be eligible to enroll in the Agricultural land category.

To enroll sugarbush in the Agricultural land category, an application and a map of the parcel delineating the enrolled land, enrollment categories, and excluded lands, must be submitted to PVR. Beginning only recently in 2015, as a result of Act 64, once land has enrolled in the Agricultural land category the landowner will need to annually certify continued eligibility. Currently there are no management standards ensuring forest health or maintaining water quality nor is there field staff dedicated to ensuring continued eligibility (no inspections required) or to support appropriate management on the sugarbush enrolled in the Agricultural land category.

In 2015 the use value of the Agricultural land category was \$289 and the annual property tax on these 100 acres at a 2% tax rate would be \$578. On land with an FMV of \$1,000/ acre, savings for an enrolled landowner would be \$1,422 per year.

Discussion

Use of forests as sugarbushes is increasingly common in Vermont and when enrolled in UVA, two different use values, Forestland and Agricultural land, are applied to this single use. However, neither of the use values attempt to account for the costs and incomes associated with active sugarbush management. It would be possible to integrate sugarbush specific values into the formulas for Agricultural and Forestland use-value formulas; however, these sugarbush values would dilute and be diluted by the values that specifically consider crop and pasture land rental values for Agricultural land use value and the stumpage values and associated management costs which are necessary to determine the Forestland use value. While no specific formula has been developed for establishing the use value of sugarbush lands, it is likely that if it were to parallel the model of the Forestland category, values would likely be higher than those established annually for either Forestland or Agricultural land.

Because the owners of sugarbush lands have the option to enroll in one of two categories there is reduced incentive to adhere to UVA forestry standards. Enforcement of plan and management standards by county foresters on sugarbush lands enrolled in the Forestland category sometimes results in shifting enrollment of those parcels into the Agricultural Land category where there are no management standards. While it is not the norm, management of lands in this category can and sometimes do result in poor management of roads and harvesting practices damaging to forest health without implications for continued enrollment in UVA. The forest management standards and specifically the Sugarbush Management Standards and Tapping Guidelines for Forestland in Use Value Appraisal are designed to protect forest health and be compatible with development and maintenance of a productive sugarbush. Management according to these standards supports maintenance of road

stability, prevention of erosion and soil loss, maintenance of water quality, individual tree health, and promotes multiple tree age classes and species diversity to build resilience and support wildlife benefits. Economics also play into the decision of enrollment in either Agricultural Land or Forestland categories. The costs associated with developing and updating a forest management plan, which is required at the time of enrollment and subsequently every 10 years for continued eligibility in the Forestland category, could cost between \$5.00 and \$25.00 per acre, a periodic cost that is not incurred in the Agriculture category. However, cumulative savings from enrollment in the Forestland category generally exceeds the cost of forest management plans, often providing an economic justification for enrollment in the forestland category.

Because conservation of forests is in the public interest and sap is derived from forests, eligibility of sugarbushes in the UVA program should depend on management of forests in a way that protects the public interest. This is consistent with the statutory purposes of UVA1. Currently, through plan and management standards, there is more assurance that this is achieved when sugarbush lands are enrolled and maintain eligibility in the forestland category. In the forestland category, when these lands are not managed in a way that protects water quality or forest health through adherence to an approved forest management plan, they are subject to removal from the UVA program and may need to pay the Land Use Change Tax (LUCT). This mechanism for protecting the public interest in forests is not available for sugarbush lands enrolled in the Agricultural category. For these reasons all sugarbush lands enrolled in the UVA program should be required to adhere to a forest management plan and management standards as approved by the Commissioner of FPR. However, the requirement that all sugarbush lands be enrolled in the forestland category would fail to support continued eligibility of the breadth of sugarbush lands and parcels currently enrolled in UVA. This is because there are many small sugarbushes that meet Agricultural land requirements for enrollment but would not satisfy the acreage requirements for enrollment in the forestland category. Furthermore, the use values of forestland category do not consider the actual sugarbush values.

Currently there is not a category in UVA that has the eligibility requirements, management standards and appropriate use values to effectively protect forest health and support ownership of all sugarbush lands enrolled in UVA.

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- ¹ 32 V.S.A. § 3751, **Statement of purpose provides as follows:**

The purpose of this subchapter is to encourage and assist the maintenance of Vermont's productive agricultural and forestland; to encourage and assist in their conservation and preservation for future productive use and for the protection of natural ecological systems; to prevent the accelerated conversion of these lands to more intensive use by the pressure of property taxation at values incompatible with the productive capacity of the land; to achieve more equitable taxation for undeveloped lands; to encourage and assist in the preservation and enhancement of Vermont's scenic natural resources; and to enable the citizens of Vermont to plan its orderly growth in the face of increasing development pressures in the interests of the public health, safety, and welfare.

Recommendations

To unify the management standards and use values of all sugarbush lands enrolled in UVA, FPR recommends that a new enrollment category be created and all lands currently enrolled as sugarbush in either the forestland or agricultural land categories be enrolled under this new category, with one, newly created, unique valuation and one uniform set of management and eligibility standards. The management standards should be similar to those applied to the forestland category focused on preserving forest health and the productive capacity of sugarbush lands. However the eligibility standards should allow small acreages that are demonstrably used as sugarbush to enroll in the sugarbush category. The standards and monitoring of eligibility should be administered by FPR in partnership with PVR.

To achieve this it is likely that Title 32 Chapter 124 will need to be amended to accommodate these changes. Several changes in the enrollment process and eligibility standards will need to be defined in partnership with PVR and the Agency of Agriculture, Food and Markets. Further, this category would require development of sugarbush management plan and management standards specific to enrollment of sugarbush lands. These standards should be developed in consultation with the University of Vermont Proctor Maple Research Lab, the Vermont Sugar Maker's Association and other partners.

To successfully transition current and future sugarbush enrollments into this new category, a multiyear process will be required. Clear communication between PVR, FPR, the Agency of Agriculture, Food & Markets (AAFM) and the public will be critical. This process will require the development of new management standards and use value formula involving an array of stakeholders from both the agricultural/farming and forestry community. These standards and the valuation would be released to the public; and landowners, consulting foresters, sugar makers and others would need to be educated on the sugarbush management standards and plan standards. Following the public release of standards, a limited easy-out provision could be implemented for those lands that have been enrolled as sugarbush in either the forestland or agricultural land categories. All sugarbush lands not withdrawn during the easy-out period would be required to bring their property and management plans up to standards over a period of time reasonable for landowners. After submission of management plans the transition of sugarbush in to this new category would take effect.

If these recommendations are implemented, there will be significant work to support landowners, foresters, and the maple sugaring industry through this transition, and an ongoing responsibility to administer and ensure compliance on the additional parcels transitioning from enrollment in the Forestland or Agricultural Land categories currently in UVA to the new proposed Sugarbush category. This work will require one additional full time employee (FTE) within FPR and likely additional support within PVR. The FPR position would be a lead staff person responsible for working with partners to develop Sugarbush Plan and Management standards for this new category, develop the new use value, educate the public about the standards and transition process, and support existing FPR staff in the transition. In light of the expansion of the sugaring industry, it's footprint on the landscape and the growing economic significance of this industry and the public benefits forests provide to the state, the need for additional oversight is clear. Following the successful transition of sugarbush lands within UVA

categories, it will be necessary to have FPR staff with expanded expertise in sugaring and the sugarbush industry to support and provide guidance to owners of sugarbush lands on a statewide basis, and to provide input to FPR and the Agency of Natural Resources on management of these lands outside of the scope of UVA. This staffing would be necessary in addition to staffing needed to ensure compliance with expanded enrollments in UVA.

To address the long term responsibility of ensuring compliance with existing UVA requirements and standards, Act 57 of 2015 asked the Secretary of the Agency of Natural Resources to report on whether the current number of county foresters is sufficient to oversee compliance of forestland subject to UVA. That report, issued separately from this, spells out several programmatic and staffing changes that would need to occur in order to meet FPR's current statutory and administrative responsibilities. In addition to the staffing needed to address the upfront workload to support the transition and serve as the FPR lead on sugarbush issues in VT, proposed changes to the sugarbush category outlined in this report will increase county forester workloads. When fully implemented, more management plans will need to be reviewed and approved along with additional parcel inspections. This is the result of requiring sugarbushes, now enrolled in the Agricultural Land category, to develop and adhere to forest management plans and sugarbush standards. This will require an additional FTE, likely a county forester, to handle additional plan reviews, inspections and other duties associated with expanded responsibilities of FPR. If staffing recommendations are met in the Act 57 Report this will expand FPR capacity requiring only the one position of the FPR expert on sugarbush management as opposed to the 2 positions that would be needed if the recommendations in the Act 57 Report are not fulfilled.

Works Cited

National Agricultural Statistics Service. (2006). *Maple Syrup 2006*. Concord, NH: United States Department of Agriculture.

National Agricultural Statistics Service. (2015). *Northeast Maple Syrup Production*. Harrisburg, PA: USDA, Northeastern Regional Field Office.

Appendix A

Agricultural Land Use Value Formula

Formula:

2014 Weight Average + 4 previous years divided by 5 = Annual Weight Average

8.13%

Plus 4 previous approved Agricultural Current Use Values

5 years

Equals Current year Agricultural Land Use Value

2014 Contributing Factors

Total VT Cropland (2012 USDA Census): 488,327 acres					
	2014	2013	2012	2011	2010
Statewide Rental Average/ acre:	\$ 48.00	\$ 43.00	\$ 40.00	\$ 30.00	\$ 36.00
Wgt. Average:	73%	65%	65%	61%	61%

Total VT Pastureland (2012 USDA Census): 177,076 acres					
	2014	2013	2012	2011	2010
Statewide Rental Average/ acre:	\$ 21.00	\$ 23.00	\$ 22.00	\$ 19.00	\$ 23.00
Wgt. Average:	27%	35%	35%	39%	39%

<u>Annual Wgt. Avg.</u>	2014	2013	2012	2011	2010	5 yr. Average
	\$ 40.71	\$ 36.00	\$ 33.70	\$ 25.71	\$ 30.93	\$ 33.41
Weighted Average						
2014 (\$48 X 73%) + (\$21 X 27%) = \$40.71	\$ 35.04	\$ 5.67	\$ 40.71			
2013 (\$43 X 65%) + (\$23 X 35%) = \$36.00	\$ 27.95	\$ 8.05	\$ 36.00			
2012 (\$40 X 65%) + (\$22 X 35%) = \$33.70	\$ 26.00	\$ 7.70	\$ 33.70			
2011 (\$30 X 61%) + (\$19 X 39%) = \$25.71	\$ 18.30	\$ 7.41	\$ 25.71			
2010 (\$36 X 61%) + (\$23 X 39%) = \$30.93	\$ 21.96	\$ 8.97	\$ 30.93			
5 yr. avg. (2010-2014)	\$ 33.41					

Capitalization

Rate:

debt/cost of capital	4.10%	(10 yr. avg. of 30-yr. Treasury Bonds)
risk	2%	
property tax	<u>2.03%</u>	(statewide effective tax rate)
Capitalization rate:	8.13%	

Apply Capitalization Rate:

\$33.41 Divided by 8.13% equals: \$411

Average 2014 C.U. value with prior 4 years values:

2011	\$238	
2012	\$254	
2013	\$265	
2014	\$279	
2015	\$411	(2015 Agricultural Land Use Value)

Current Use Value: \$289

Reported by:

Sylvia Jensen, Land Use Administrator, VT Agency of Agriculture, Food & Markets.

Appendix B

Forestland Use Value Formula

Vermont Department of Forests, Parks & Recreation

Calculation where:

HSV =	Harvest stumpage value	\$31,539,751.79
USV =	Unharvested stumpage value factor	2.04
FA =	Forested acres	4,514,170
MGT =	Management factor	0.25
DR =	Discount rate*	4.12
ETR =	Effective tax rate	\$2.03
UV =	Calculated use value	
UV15 =	5 year average of use values	

* Discount rate obtained from 10 year average of nominal U.S. Treasury 30 year bond rates.

$$\text{Use Value} = \frac{((\text{HSV} * \text{USV}) / \text{FA}) - (((\text{HSV} * \text{USV}) / \text{FA}) * \text{MGT})}{(\text{DR} + \text{ETR})}$$

$$\text{numerator} \quad \underline{10.67988}$$

$$\text{denominator} \quad 6.151903$$

$$\text{UV} = 1.736029$$

$$\text{UV} * 100 \quad \$ 173.60$$

UV= \$173.60 calculated use value

UV 2015 =

2015	\$173.60	based on final values from PVR and FIA 12/29/2014
2014	\$118.00	
2013	\$119.00	
2012	\$123.00	
2011	\$122.00	
Average	\$131.12	2015 UVA Forestland Value

\$131.00

2015 UVA Forestland Value