Maple Leaf Farm
A Study of Recidivism
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Commissioned by Maple Leaf Farm

In cooperation with
Vermont Department of Corrections

Acknowledgements

This study was commissioned by Maple Leaf Farm Executive Director William Young to provide Maple Leaf Farm Board and management staff with data to assist with program improvement, and to provide outcome data for Corrections, Maple Leaf Farm and state policy makers regarding effect of treatment on individuals with a Corrections history.

The study was made possible by the access granted to the Department of Corrections database, and the support of DOC staff. The Maple Leaf Farm database was made available with assistance of Joanne Davis, Business Manager at Maple Leaf Farm.

The study examined the records of 8,979 persons who have been admitted to Maple Leaf Farm (MLF) in Underhill, Vermont, during the period from June 30, 1990 to November 15, 2010.   These names were compared to the Vermont Department of Corrections database, which matched 5,797 names as having had DOC involvement. Characteristics of clients, treatment, and corrections involvement were described and tracked for recidivism.

In addition, of the DOC-involved clients, 2,595 were selected for whom records of three years prior to MLF admission <u>and</u> three years after discharge were available. For this group, costs and correctional service outcomes were described.

Concern over maintaining confidentiality of MLF clients resulted in the development of a "double-blind" algorithm, which created a set of dummy names and DOBs which were randomly integrated into the MLF database. The new database would then be matched to the DOC data, and a set of names generated of persons known to both DOC and MLF. This list was then stripped of the dummy names and IDs, as well as those names of true MLF clients who did not have a corrections history. The resulting database became the only data available to DOC. The assistance of the Department of Corrections in compiling the data and mapping to the DOC database is gratefully acknowledged.

FINDINGS

## PART 1: Characteristics of the Population

Substance Use
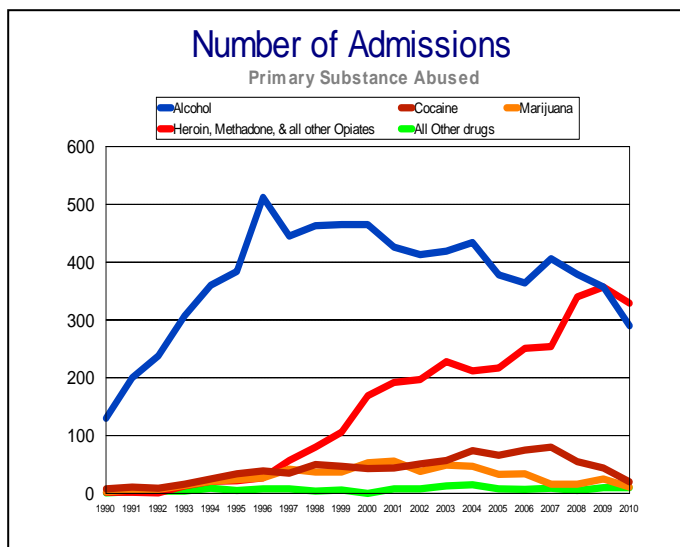
The most striking finding is the shift over the past two decades in the proportion of opiate abusers among the Maple Leaf Farm Associates (MLF) client population. In 1990, ninety percent of the clients were admitted for alcohol abuse issues. Twenty years later, less than half of the clients are alcohol abusers, while the proportion of opiate addicts has increased to half of all admissions.
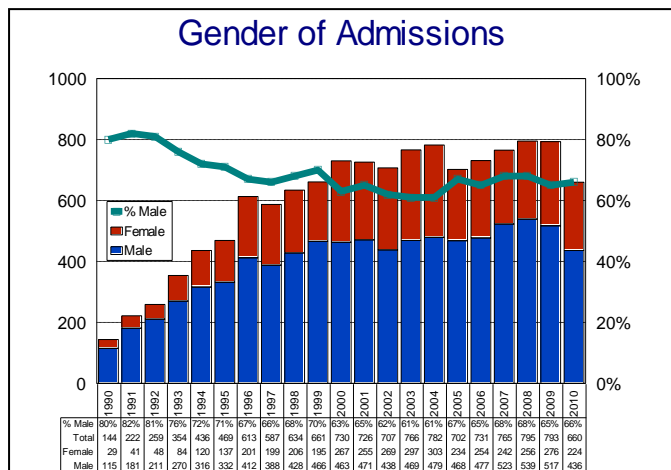
Shift in Opiate Use
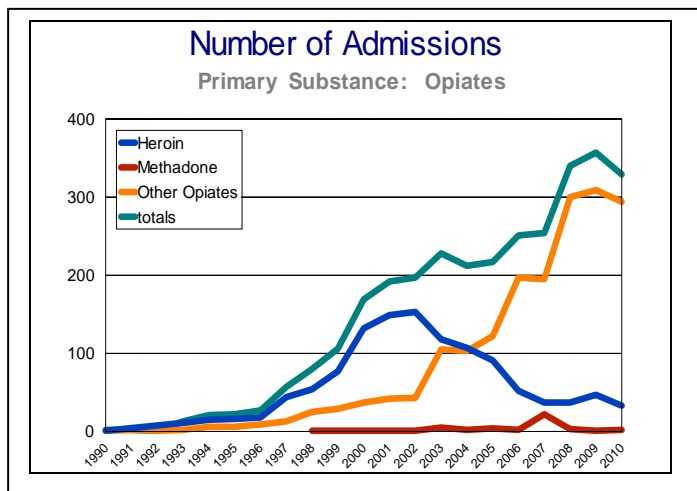
In the past ten years, while the number of opiate abusers has steadily increased, the type of opiate has changed from heroin to "other opiates", primarily oxycontin and other heroin substitutes. This shift has had significant implications for treatment, both modalities and prognoses. Opiate addictions are notoriously difficult to treat.

Route of Abuse

Chart 2

Route of substance ingestion

Injection
Inhale
Smoke
Oral
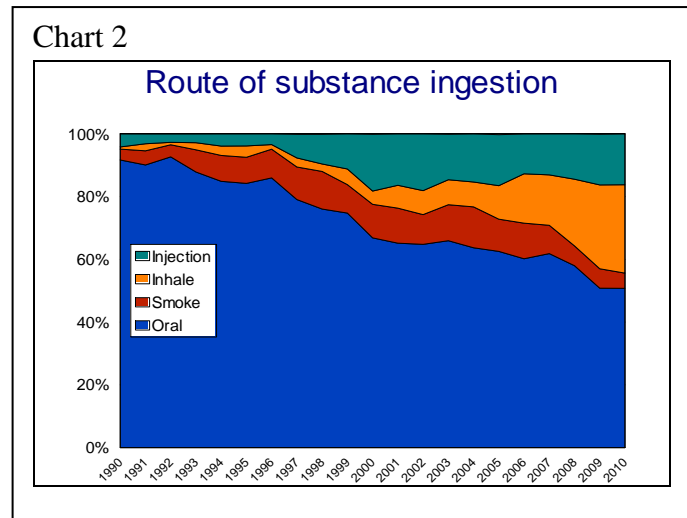
The shift in drug abuse shows up in the route of ingestion, with an increasing use of inhalation of crushed medications, and a decrease of oral ingestion consistent with the decline in alcohol. The increase in inhaling as a means is consistent with the use of Oxycontin as a crushed inhalant.

Gender

Gender of Admissions

% Male
Female
Male

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
% Male	80%	82%	81%	76%	72%	71%	67%	66%	68%	70%	63%	65%	62%	61%	61%	67%	65%	68%	68%	65%	66%
Total	144	222	259	354	436	469	613	587	634	661	730	726	707	766	782	702	731	765	795	793	660
Female	29	41	48	84	120	137	201	199	206	195	267	255	269	297	303	234	254	242	256	276	224
Male	115	181	211	270	316	332	412	388	428	466	463	471	438	469	479	468	477	523	539	517	436

The proportion of women among the MLF admissions has been changing, as well, over the years, from about 20% in the 1990s. Women now comprise about a third of all MLF admissions.

Race and Ethnicity

TABLE 2

RACE

	Number	Percent
AK Native	11	0.1%
Amerind	252	2.0%
Asian/Pac	24	0.2%
Black	165	1.3%
White	12082	96.4%
Unk.	2	0.0%
Total	12536	

TABLE 3

ETHNICITY

	Number	Percent
Puerto Rican	47	0.4%
Mexican	11	0.1%
Cuban	7	0.1%
Other Hispanic	54	0.4%
Not Hispanic	12413	99.0%
Unknown	2	0.0%
Total	12536	100.0%

Nearly all of the admissions to Maple Leaf over the twenty years have been white (96%), and non-hispanic (99%). The percentage of blacks is about the same proportion as Vermont as a whole (1.3%), but the percentage of American Indians is somewhat higher than Vermont (0.4%).
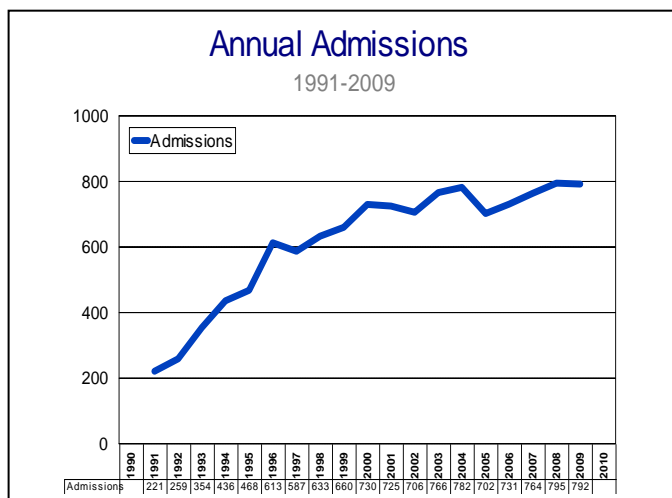
Employment
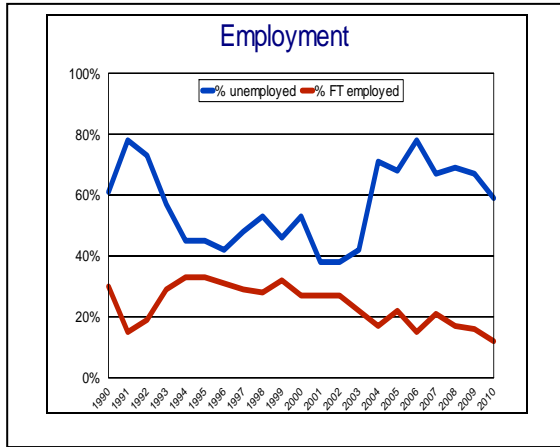
The level of unemployment among admissions to MLF varies, but generally follows the economy as a whole. Participation in the work force, in full time employment, however, has steadily decreased since the mid-90s. This reflects an increasingly difficult population to expect treatment persistence. Less than 15% of current year admissions were in full-time jobs.

PART TWO: Treatment Characteristics

As is well reported in the treatment literature, clients who complete treatment successfully have a better prognosis for recovery. The goal for treatment programs is, then, directed at the cognitive-behavioral outcome of completion of the set of objectives established for each client during the treatment period. It is also well established that aftercare and follow-up contact with clients is important to maintaining sobriety and avoiding relapse. Further, it is well established that while initial contact with treatment providers is successful with many clients, the nature of addiction may respond to repeated treatment opportunities over time. Clients with longer addiction histories and clients with multi-level needs and health issues may relapse many times.

Admissions and Discharges

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Admissions		221	259	354	436	468	613	587	633	660	730	725	706	766	782	702	731	764	795	792	

Admissions to MLF tripled during the 1990s, from about 200 to more than 600 as program capacity expanded. Since that period of rapid expansion, growth has continued more slowly. During the 2000s, admissions have grown to about 800 annually.

Terminations

From 1990 to 1996, the numbers of clients of MLF who left against the advice of the professional treatment staff increased dramatically, peaking at nearly 80% of all admissions. Clearly, after 1996 the program made modifications of practice that resulted in a reduction of clients choosing to leave.

Annual Admissions vs. Self-Terminations
1991-2009

|	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Admissions		221	259	354	436	468	613	587	633	660	730	725	706	766	782	702	731	764	795	792	
Left vs. Prof. Advice		94	112	127	260	343	448	361	319	263	226	192	209	205	204	171	191	184	168	163	

Number Completing Treatment
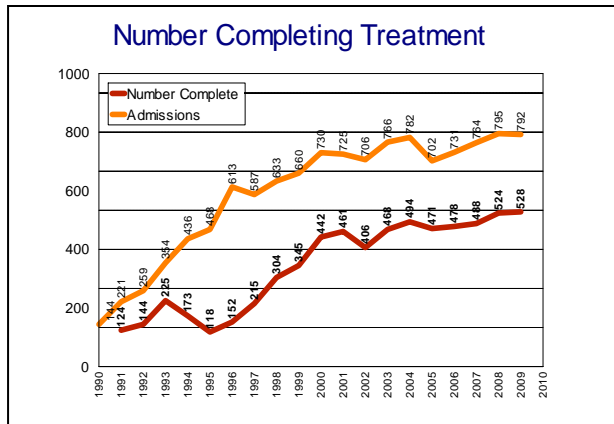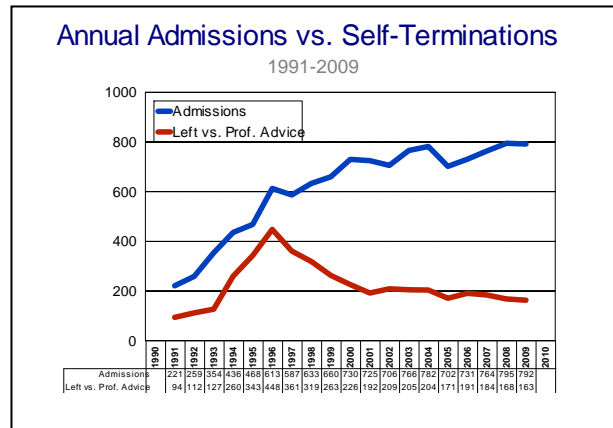
Treatment completion

The number of clients who completed treatment successfully turned in 1995, and has increased steadily since then and continued to grow albeit more slowly during the past ten years.

Percent Completing Treatment
Discharges coded as completions
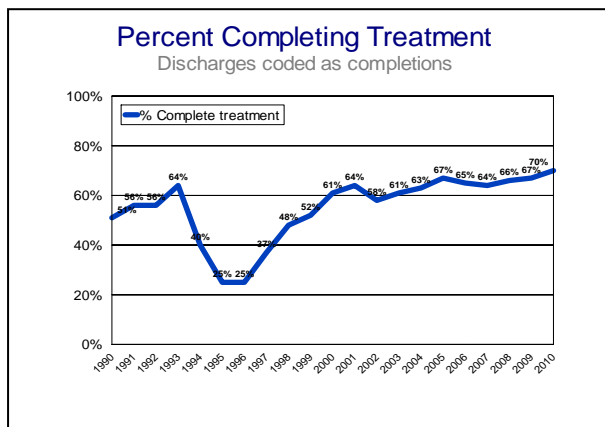
Most importantly, the data show a steady increase in the percentage completing treatment, after the restructuring of MLF in the late 90s. The current year shows a completion rate of 70%.

Prior Treatment

Treatment Completion by Episode
1st, 2nd,3rd encounter completion rates
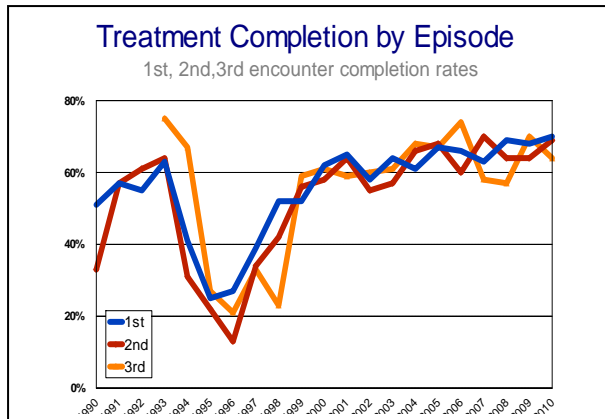
Also examined was the variance in rate of completion in repeated application of treatment. Rates were compared for first, second, and subsequent return treatment encounters. The completion rate of initial and repeat encounters with MLF is remarkably consistent. After the program collapse in the early-to-mid-1990s, the proportion of clients completing treatment after failing to complete prior treatment demonstrates a consistent outcome. This suggests that client readiness is paramount, consistent with the literature.

Importantly, these data also suggest that repeating treatment attempts does not result in declines in completion rates. This is encouraging of the relapse-prevention and treatment persistence approaches.

Prior DOC Involvement

MLF Clients with Prior DOC Involvement
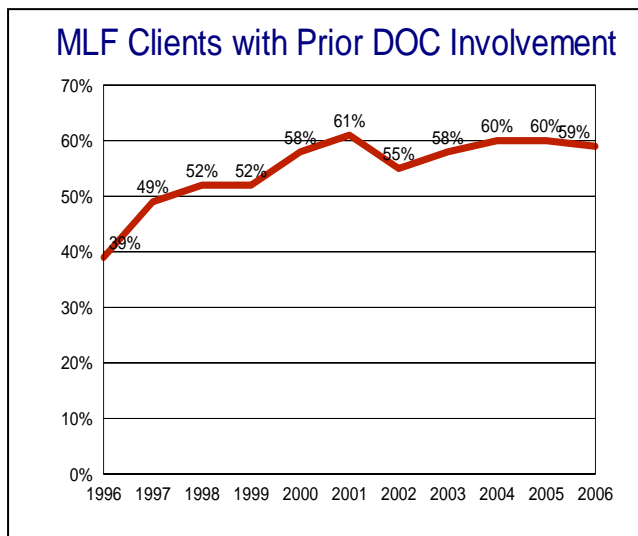
The proportion of DOC involved clients has also increased during the period studied, from a low of 39% to about 60%. The DOC database matched 8,493 MLF Admissions involving 5,797 names. This represents 68.5% of the admissions and 64.5% of the individual names. This is consistent with the findings from the preliminary study done this summer, that about two thirds of MLF clients have involvement with the criminal justice system.

PART THREE: Recidivism

The Vermont Department of Corrections' defines recidivism as: "Conviction of a new offense committed within three years of the date of release or placement in the community." This definition excludes charges filed but not prosecuted, and excludes as well convictions which result only in a fine.

Overall recidivism by discharge reason

The results of the recidivism analysis are encouraging. Overall, offenders (those MLF clients with a record of conviction prior to MLF admission) have a 58.5% rate of reoffending. However, those who complete treatment are less likely to reoffend, with a rate of 54.9%, compared to 63.4% for all other offenders who do not complete treatment. Offenders who left against recommendation had a 61.4% re-offense rate.

Table 7: Recidivism by Discharge Reason (1996-2006)							
Discharge Reason	**None in 3 years**	**Offense in year 1**	**Offense in year 2**	**Offense in year 3**	**3-Year Total**	**Total**	**Rate (3yr)**
Treatment Completed	**1096**	**794**	**324**	**216**	**1334**	**2430**	**54.9%**
Left vs advice	539	556	180	120	856	1395	61.4%
Terminated	41	50	25	8	83	124	66.9%
Transferred	15	19	5	1	25	40	62.5%
Incarcerated	49	100	29	14	143	192	74.5%
Other	9	18	6	0	24	33	72.7%
Total Non-completers	653	743	245	143	1131	1784	**63.4%**
Total Tracked	1749	1537	569	359	2465	4214	58.5%

These data refer only to those clients of MLF who had an involvement with Corrections prior to the admission being tracked. There were certainly MLF clients who had no offense history prior to treatment and committed an offense after a treatment program at the facility, but these are excluded from the analysis of the specific admission. If they were admitted to MLF for treatment subsequent to the criminal justice involvement, the outcome of this treatment is included in the data in Table 7 and subsequent analyses.

Recidivism across cohorts

The results of analysis across admission year show some variation but do not show significant differences year to year.

Table 8: Recidivism Rate by Admission Cohort, 1996-2006							
Year	None in 3 years	Offense in year 1	Offense in year 2	Offense in year 3	3-Year Total	Total	Rate (3yr)	Data * excluded
1996	88	86	33	29	148	236	63%	147
1997	109	116	30	24	170	279	61%	121
1998	131	128	47	28	203	334	61%	103
1999	148	118	42	37	197	345	57%	115
2000	150	162	70	35	267	417	64%	93
2001	184	169	56	28	253	437	58%	77
2002	158	149	50	35	234	392	60%	87
2003	198	135	67	33	235	433	54%	87
2004	186	169	76	37	282	468	60%	84
2005	205	144	38	35	217	422	51%	60
2006	186	155	56	35	246	432	57%	68

Recidivism is conviction of an offense committed within time period after release. Data exclude clients for whom DOC has a (later) record, but with no offense history prior to MLF Admission.

These time-series data do show that despite an increase in the numbers of clients who have a corrections background being served by MLF, the rate of recidivism did not increase.

Recidivism vs. treatment completion across time

Arraying the data to compare treatment completers against non-completers, by admission year, reveals substantial differences between those who are discharged having completed treatment compared with those who left without completion. Program completers recidivate at a rate of 54.8% over the period, while non-completers recidivate at a 63.4% rate. Comparing the two, non-completers are thus 15.4% more likely to reoffend.

Table 9

	Recidivism of Discharge Cohorts -- completers vs non completers						
	Program Graduates			Non-completers			Percent difference
	recidivists	total	rate	recidivists	total	rate	
1996	37	60	61.7%	111	178	62.4%	1.1%
1997	59	109	54.1%	120	180	66.7%	23.2%
1998	96	168	57.1%	102	161	63.4%	10.9%
1999	108	190	56.8%	88	152	57.9%	1.9%
2000	152	253	60.1%	120	170	70.6%	17.5%
2001	152	279	54.5%	100	162	61.7%	13.3%
2002	116	219	53.0%	113	169	66.9%	26.2%
2003	135	259	52.1%	111	184	60.3%	15.7%
2004	173	303	57.1%	106	165	64.2%	12.5%
2005	140	287	48.8%	79	135	58.5%	20.0%
2006	156	287	54.4%	91	144	63.2%	16.3%
Totals	1324	2414	54.8%	1141	1800	63.4%	15.6%

Includes only offenders with prior criminal history and identified in DOC database three within three years of admission.

These findings describe a consistent difference over the period in recidivism outcome between offenders who complete treatment. Overall, program completers (graduates) are significantly less likely to re-offend than non-completers. It should be noted that MLF makes a concerted effort to involve non-completers in after care planning and referrals.

This is important when the numbers of completers and non-completers are compared over the time period. In 1996, at the nadir of MLF program, there were only 60 program graduates among the clients who had been involved with DOC. There were in that same year by contrast 178 non-completers. In 2006 there were 287 Corrections-involved clients who graduated, and only 144 who did not.

Translating this to a statistic, the program has moved from 1996 when only 25% of the Corrections-involved clients of MLF were discharged as having completed treatment, to 2006 when 67% of the Corrections-involved clients

completed treatment. While the numbers of DOC clients nearly doubled, from 238 to 431, the number of treatment completers rose from 60 to 287.
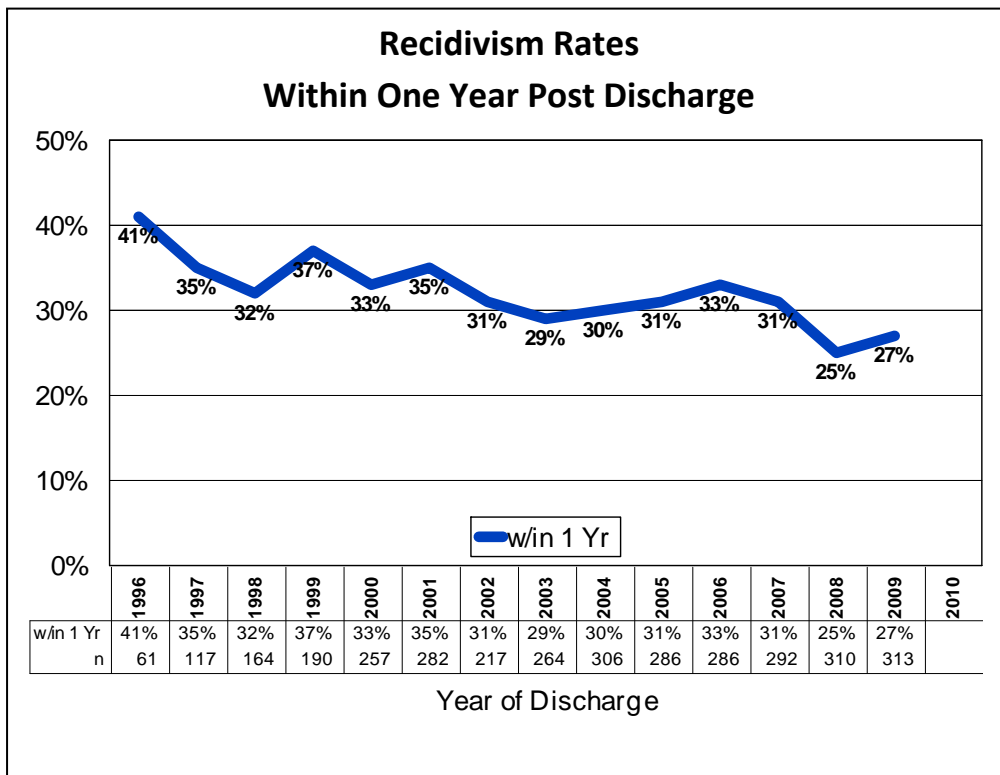
Table 10

Treatment Completion by DOC-Involved clients			
Year	total DOC	Completed	Completion rate
1996	238	60	25%
1997	289	109	38%
1998	329	168	51%
1999	342	190	56%
2000	423	253	60%
2001	441	279	63%
2002	388	219	56%
2003	443	259	58%
2004	468	303	65%
2005	422	287	68%
2006	431	287	67%
total	4214	2414	

In summary, MLF graduates with a DOC involvement prior to treatment are an increasing portion of MLF clients, who increasingly complete treatment. Those who complete treatment are less likely to recidivate

One-year Recidivism

Recidivism rates were also calculated for one year following discharge from treatment, to examine any differences in outcome following the program changes introduced at MLF beginning in 1996 and especially after 2005. While 3-year followup is preferred for recidivism analysis, the one year comparisons can give some indication of directionality. It should be cautioned that court data on convictions often lags the crime occurrence and, in particular, recent data is likely to omit convictions which will reappear.

Nevertheless, the recent years do show a decline in recidivism.

Recidivism Rates
Within One Year Post Discharge

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
w/in 1 Yr	41%	35%	32%	37%	33%	35%	31%	29%	30%	31%	33%	31%	25%	27%	
n	61	117	164	190	257	282	217	264	306	286	286	292	310	313	

Year of Discharge

The primary determinant: Prior incarceration

In developing data for cost analysis, offenders in the MLF study group were sorted for periods of incarceration and/or supervision for the three years previous to treatment, and tracked similarly for the three years after discharge.

Table 11

INCARCERATION OF MAPLE LEAF FARM CLIENTS BEFORE AND AFTER TREATMENT					
		Post Treatment Incarceration			
		NONE	YES	Total	% Post
PRE-Treatment Incarceration	NONE	854	544	1398	38.9%
	YES	326	871	1197	72.8%
	Total	1180	1415	2595	54.5%
	% PRE	27.6%	61.6%	46.1%	

It is highly significant (p<.005) that pre-treatment incarceration correlates so strongly with post-treatment incarceration. This fact, of which there is no reason to doubt generalization to other DOC populations, strongly masks other effects, and must be accounted for in the analysis of outcome, cost, and benefit.

PART FOUR: Cost Avoidance

Reincarceration

- Corrections-involved clients (46.5% of the total) of MLF who had no previous incarceration were incarcerated post-treatment at the rate of 38.9% during three years of follow-up.
- Corrections-involved clients (54.5% of the total) of MLF who had been incarcerated prior to treatment were re-incarcerated post treatment at the rate of 72.8% during three years of follow-up.

Treatment Completion *vs.* Corrections involvement

- For those who had **no prior** incarceration, MLF clients who **completed treatment** had 10.6 fewer days of incarceration than those who did not complete treatment.
- For those who had **prior incarceration**, MLF clients who **completed treatment** had 41.1 fewer days of incarceration than those who did not complete treatment.

Cost basis

- The average cost for a day of treatment at MLF is $250.29, of which 35% is General Fund cost.
- The average cost for a day of supervision by DOC is $13.00.
- The average cost for a day of incarceration in Vermont is $149.00.
- The average cost for a day of incarceration in a contracted facility out-of-state is $66.00

Cost avoidance comparison

- For DOC-involved MLF clients with **no prior** incarceration, the 3 year return on investment of MLF costs vs. post-treatment DOC cost-avoidance is approximately $1,370,474 for completers vs. non completers.
- For DOC-involved MLF clients with **prior** incarceration, the 3 year return on investment of MLF costs vs. post-treatment DOC cost-avoidance is approximately $4,656,918 for completers vs. non-completers.
- Over a longer period of follow-up, return would likely increase.

Table II

		No Incarceration POST			Incarceration POST			TOTALS		
		TOTAL DAYS SERVED BY TREATMENT COMPLETION, PRE VS POST TREATMENT								
Past Incarceration	Discharge Reason	Count of Treatment Status	Sum of POST INC Days	Sum of PRE INC Days	Count of Treatment Status	Sum of POST INC Days	Sum of PRE INC Days	Total Count	Total Sum of POST INC Days	Total Sum of PRE INC Days
NONE	Complete	542	0	0	315	43674	0	857	43674	0
	all others	312	0	0	229	33282	0	541	33282	0
	total	854	0	0	544	76956	0	1398	76956	0
PREVIOUS	Complete	230	0	16328	576	160822	102389	806	160822	118717
	all others	96	0	9117	295	94097	57202	391	94097	66319
	total	326	0	25445	871	254919	159591	1197	254919	185036
Grand Total		1180	0	25445	1415	331875	159591	2595	331875	185036

		No Incarceration POST			Incarceration POST			TOTALS		
		AVERAGE (Mean) DAYS SERVED BY TREATMENT COMPLETION, PRE VS POST TREATMENT								
PRE-Tx Incarceration	Discharge Reason	Count of Treatment Status	Mean Days of POST INC	Mean Days of PRE INC	Count of Treatment Status	Mean Days of POST INC	Mean Days of PRE INC	Total Count	Mean Days of POST INC	Mean Days of PRE INC
NONE	Complete	542	0	0	315	138.6	0.0	857	51.0	0
	all others	312	0	0	229	145.3	0.0	541	61.5	0
	total	854	0	0	544	141.5	0.0	1398	55.0	0
PREVIOUS	Complete	230	0	71.0	576	279.2	177.8	806	199.5	147.3
	all others	96	0	95.0	295	319.0	193.9	391	240.7	169.6
	total	326	0	78.1	871	292.7	183.2	1197	213.0	154.6
Grand Total		1180	0	21.6	1415	234.5	112.8	2595	127.9	71.3

			Per Diem Incarceration Cost		Estimated Savings for Completers			
			Estimated Savings: Completers vs Non-Completers					
PRE-Tx Incarceration	Number of completers	Difference in Mean Post days	Instate	Contract	Instate	Contract		
NONE	857	10.6	$ 149.00	$ 66.00	$ 1,348,172	$ 597,177		
PREVIOUS	806	41.1	$ 149.00	$ 66.00	$ 4,939,018	$ 2,187,753		

Savings are calculated based on the difference in mean days of incarceration post discharge from treatment, between treatment completers and those who did not complete. It is likely that pre-treatment incarceration costs and those for whom post-treatment incarceration is brief would be incarcerated in a Vermont Correctional Facility, at a higher cost than a contract bed. One could use the lower rate for comparison, which would decrease cost-avoidance.

Table III

TOTAL DAYS SUPERVISED BY TREATMENT COMPLETION, PRE VS POST TREATMENT									
		No SUPERVISION POST			SUPERVISION POST			TOTALS		
PRE-TX Incarceration	Discharge Reason	Count of Treatment Status	Sum of POST SUPV Days	Sum of PRE SUPV Days	Count of Treatment Status	Sum of POST SUPV Days	Sum of PRE SUPV Days	Total Count	Total Sum of POST SUPV Days	Total Sum of PRE SUPV Days
NONE	Complete	300	0	34314	557	261814	105747	857	261814	140061
	all others	203	0	21192	338	165957	72354	541	165957	93546
	total	503	0	55506	895	427771	178101	1398	427771	233607
PREVIOUS	Complete	91	0	31667	715	389469	337561	806	389469	369228
	all others	46	0	14262	345	182074	155285	391	182074	169547
	total	137	0	45929	1060	571543	492846	1197	571543	538775
Grand Total		640	0	101435	1955	999314	670947	2595	999314	772382

AVERAGE (Mean) DAYS SUPERVISED BY TREATMENT COMPLETION, PRE VS POST TREATMENT									
		No SUPERVISION POST			SUPERVISION POST			TOTALS		
PRE-Tx Incarceration	Discharge Reason	Count of Treatment Status	Mean Days of POST SUPV	Mean Days of PRE SUPV	Count of Treatment Status	Mean Days of POST SUPV	Mean Days of PRE SUPV	Total Count	Mean Days of POST SUPV	Mean Days of PRE SUPV
NONE	Complete	300	0	114.4	557	470.0	189.9	857	305.5	163.4
	all others	203	0	104.4	338	491.0	214.1	541	306.8	172.9
	total	503	0	110.3	895	478.0	199.0	1398	306.0	167.1
PREVIOUS	Complete	91	0	348.0	715	544.7	472.1	806	483.2	458.1
	all others	46	0	310.0	345	527.8	450.1	391	465.7	433.6
	total	137	0	335.2	1060	539.2	464.9	1197	477.5	450.1
Grand Total		640	0	158.5	1955	511.2	343.2	2595	385.1	297.6

Estimated Savings: Completers vs Non-Completers						
PRE-Tx Incarceration	Number of completers	Difference in Mean Post days	Per Diem Supervision Cost		Estimated Savings for Completers	
			Normal	Enhanced	Normal	Enhanced
NONE	857	1.3	$ 13.00	$ 20.00	$ 14,483	$ 22,282
PREVIOUS	806	-17.5	$ 13.00	$ 20.00	$ (183,365)	$ (282,100)

Supervision days for those with prior incarceration are actually higher for treatment completers, resulting in a negative benefit.

Cost of Treatment

PRE-TX Incarceration	Discharge Reason	Number of Discharges	Total MLF Treatment Days	Average LOS Treatment	Perdiem Treatment Cost @ MLF	Treatment Cost
Treatment Days						
NONE	Complete	857	15099	17.6	$250.29	$ 3,779,129
	all others	541	3995	7.4	$250.29	$ 999,909
	total	1398	19094	13.7	$250.29	$ 4,779,037
PREVIOUS	Complete	806	19402	24.1	$250.29	$ 4,856,127
	all others	391	6523	16.7	$250.29	$ 1,632,642
	total	1197	25925	21.7	$250.29	$ 6,488,768
	Grand total	2595	45019	17.3	$250.29	$ 11,267,806

Clients with prior incarceration successfully complete treatment at a higher rate (67% vs. 61%) than those with no prior incarceration. They also use more treatment days, whether they complete or not. While completers of both categories incur fewer days of incarceration post-treatment, the difference for those with prior incarceration is higher.

Return on Investment

Prior incarceration	Treatment Cost	GF Cost Rate	VT General Fund Costs	Incarceration Savings	Supervision Savings	Total Savings	Return on Investment
Return on Investment							
No Prior	$ 4,779,037	35%	$1,672,663	**$1,348,172**	$ 22,282	**$1,370,454**	**82%**
Previous	$ 6,488,768	35%	$2,271,069	**$4,939,018**	$(282,100)	**$4,656,918**	**205%**
Total	$11,267,806	35%	$3,943,732			**$6,027,372**	**153%**

Net Savings	
No Prior	$ (302,209)
Previous	$2,385,850
Total	$2,083,640

In sum, the costs for treatment to the Vermont General Fund are more than offset by the savings in incarceration costs for those who successfully complete treatment. For those who have had prior incarceration, the return is substantial.

Conclusions and Recommendations

Client Selection

- MLF should continue to focus on higher-need DOC-involved clients, as return on investment is significantly higher.
- Despite an increasingly difficult population, MLF outcomes have continued to improve.

Criminal Justice

- Divert as many offenders from the court and corrections systems as possible consistent with public safety.

- If MLF treatment is prescribed for substance involved, prison-bound offenders, **as an alternative to incarceration,** post-discharge savings will increase dramatically, due to the significant negative effect of prior incarceration, and the higher effectiveness with high-risk clients.

- Especially divert high-need prison-bound offenders to treatment instead of incarceration.
- The population served at MLF has grown much more complicated, yet program completions have risen significantly

Further Analysis

- The database of MLF is a rich source of information. It should be mined further.
- Similar outcome studies should be undertaken periodically across the treatment system.
- Savings resulting from successful treatment carry over far beyond Corrections into such areas as Health, Child and Family Welfare, Police and Courts, domestic Violence, and others. Vermont should pursue tracking of these outcomes as well to obtain a complete picture.

Appendix: Background of the Study

Study Origin

In early 2010, Maple Leaf Farm Executive Director William Young commissioned a study of the recidivism outcomes for clients of the treatment program operated at the Underhill, Vermont facility. Initially it was thought that a major effort would be needed to collect and record data from client files, many of which were voluminous. Initial design of the study was directed review of client case files toward the development of a sampling procedure and a data collection design.

Preliminary Design

Fortunately, with the assistance of Joanne Davis, Business Manager at Maple Leaf Farm (MLF), a database was discovered and assembled which contained records of admission, treatment, client identifiers and characteristics, and dates of termination. The database is the result of collection of information required by the Vermont Health Department, but having kept it and maintained the information at Maple Leaf was a decided bonus. The database contains information from June, 1990, to mid-November, 2010.

The existence of this database allowed the study to use the Vermont Department of Corrections (DOC) database and the "Standard Recidivism Engine," a tool developed over the past three years by the DOC Research and Planning Division. This tool allows the comparison of a database from an external source, with name and date of birth identification, to determine the matching to the DOC Person Identifier (PID), and then cross-matching of characteristics of the person's history with DOC, court conviction, and other criminal justice records.

Concern over maintaining confidentiality of MLF clients resulted in the development of a "double-blind" algorithm, which created a set of dummy names and DOBs which were randomly integrated into the MLF database. The new database would then be matched to the DOC data, and a set of names generated of persons known to both DOC and MLF. This list was then stripped of the dummy names and IDs, as well as those names of true MLF clients who did not have a corrections history. The resulting database became the only data available to DOC. The assistance of the Department of Corrections in

compiling the data and mapping to the DOC database is gratefully acknowledged.

Preliminary Analysis

Over the summer of 2010, the database was generated, and in August a trial run was made of an abstract of the MLF database, using the double-blind algorithm, to determine the extent of cross-matching to the DOC data.

There were a total of 5378 names in the preliminary list. The DOC database matched 3567 names perfectly, with an additional 73 multiple matches. A total of 1732 of the MLF clients have no record of contact with DOC. Thus, some 68% of the MLF clients have had some contact with DOC, either before, during, or after any treatment contact with MLF.

The existence of this very large database allowed a redesign of the study to include the entire MLF population. The study questions were broadened to the following:

- Does treatment success correlate with recidivism outcomes?
- What are recidivism rates?
- Do these vary over time?

Data Preparation

The preliminary review resulted in the decision to reorganize and clean the MLF data file, to combine dates of involvement in MLF into a single start and termination date for each episode, and a cleaning of the data. This was an arduous task, undertaken by the redoubtable Joanne Davis. The result of this effort was to expand the database through November 22, 2010, and to include some 12,497 admissions of some 8,979 different persons. The data in this file is an important source for this and future studies of the effectiveness of substance abuse treatment. In the analyses, it should be noted that both 1990 and 2010 are partial year data.