
***Operational Tree
Improvement Program***

***Call for Proposals
2016/2017***

**Application Form and Guidelines
Budget Form and Guidelines**

**Ministry of Forests, Lands and Natural Resource
Operations**

**Tree Improvement Branch
in conjunction with the
Forest Genetics Council of BC**

Operational Tree Improvement Program

December 15, 2015

Dear Recipients:

This *Call for Proposals* is a continuation of the annual series of proposal calls put out by Tree Improvement Branch under the leadership of the Forest Genetics Council of British Columbia (FGC). The overarching objectives of the *Call for Proposals* is to focus on increasing the quantity, quality and pest resistance of genetically selected seed used for operational planting in British Columbia's forests. Funding for this program is to be provided under the Land Based Investment Strategy (LBIS).

There are several refinements to the call document and the application and budget forms this year. These are indicated with a "New for 2016/17" note in the margin beside changes.

As for last year, proponents are reminded to provide information in their proposals that outlines ramet replacement work accomplished in previous years. This can take the form of a table showing the amount and cost of grafting, holding, and planting for the previous 3 years where proposed work for this year is a continuation of a previously started project.

New for this year is a request to proponents to deduct from their project billing revenue received for pollen sold to other sites when the cost of that pollen was paid in whole or in part through OTIP. The deduction should be the orchard managers' best estimate of the amount of OTIP subsidy for the pollen sold.

The **submission deadline for proposals this year is Wednesday, January 20, 2016 at 4:00 pm.** Please refer to the application and budget forms for greater detail on the submission.

Please be aware that final approval of all projects is subject to the availability of funding and to the recommendation and priority assigned to each proposal by review committees. These reviews will be taking place in February. Work must not proceed until a Ministry signed contract is in place.

If you have questions or require further information please contact Darrell Wood at **250-356-1127** or by e-mail at Darrell.Wood@gov.bc.ca.

Sincerely,

Darrell Wood
Manager, Business Operations
Tree Improvement Branch

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Call for Proposals

Introduction

This is a Call for Proposals for funding under the Forest Genetics Council of British Columbia's (FGC) Operational Tree Improvement Program (OTIP) for 2016-2017. This program is funded by the Land Based Investment Strategy (LBIS) and administered by the Ministry of Forests, Lands and Natural Resource Operations (FLNR).

Proposals under this call will be received from any individual or organization with an interest in projects that are eligible under the guidelines set out in this document, including seed users and producers, tree breeders, nursery propagation facilities, and other groups.

Project eligibility criteria are developed by the Forest Genetics Council's Interior and Coastal Technical Advisory Committees. Species Plans that are developed for specific seed planning units in BC provide guidance to proponents and to reviewers. These can be found in the *FGC Business Plan for 2015/16* or online at

(<http://www2.gov.bc.ca/gov/content/industry/forestry/managing-our-forest-resources/tree-seed/seed-planning-use/seed-planning-units-species-plans>) .

Final approval of all projects is subject to the availability of funds.

The application and review processes are similar to past years. A newly adjusted budget spreadsheet **MUST BE USED BY PROPONENTS**. This spreadsheet helps reviewers interpret requests and compare proposals. **In addition, there is some reorganization of activities and the removal of some activities in this year's call. Eligibility guidelines are described in the section entitled *General Guidelines*.**

Priority will be given to proposals that:

- support FGC objectives set out in the *FGC Strategic Plan for 2015-2020*,
- are aimed at producing seed, propagules, or other genetically selected material for species or areas where current supplies do not meet demand,
- improve the genetic quality of reforestation materials ,
- address critical technical needs.

Restrictions

- **On-going multi-year projects that received approval last year must reapply** under this call **and** submit a progress report. On-going projects will be evaluated relative to other projects submitted under this call. Project approval last year will not guarantee funding for 2016-2017.
- Funding is only recommended through an objective review process by review committees set up by the Interior and Coast Technical Advisory Committees of the FGC.
- **Establishment of new orchards and expansion of existing orchards will not be considered under this call.**
- Crop harvest and other orchard management activities that are considered to be ongoing operating activities are not eligible under this call.
- Material produced must be for use on Timber Harvest Land Base Crown Lands. Investments in all projects are intended to benefit the people of British Columbia and are not specifically for private gain.

Operational Tree Improvement Program

General Guidelines

Research/Operational Activities

This program is designed for operational investment in tree improvement. Technical support projects that fill information gaps that prevent or slow progress to FGC objectives may be acceptable. Technical support projects must be focussed on an operational issue and must incorporate a rigorous experimental design that will allow objective analysis and interpretation of results. Preferably, requested technical support will be identified by the species committee(s) and listed in the OTIP eligibility table.

Project Eligibility

The Interior and Coastal TACs of the Forest Genetics Council have developed project eligibility lists (see tables 4 and 5). These are based on needs that support FGC strategic objectives and seed planning units (SPU) (species/seed zone/elevation band) rankings that are based on economic criteria (Table 1).

Projects that address higher priority SPU, increase genetic gain over existing gain levels, or support additional seed or cutting production for SPU with shortfalls will be given priority. Projects not listed in Table 4 or Table 5 (coast and interior eligible activities) are generally not eligible for OTIP funding. Eligibility is, however, subject to review committee discretion as it is recognized that not all possible projects of value can be identified in the process of setting priorities. **If proponents submit proposals for projects not eligible under either Table 4 or Table 5, they must clearly identify the activity being proposed and justify why this project should be eligible under the broader strategic objectives set out in the FGC Strategic Plan for 2015-2020.**

New for
2016/17

Orchard redundancy and seed in storage

Projects that address SPU's with a large amount of moderate gain or better seed already in storage (see species plans at <http://www2.gov.bc.ca/gov/content/industry/forestry/managing-our-forest-resources/tree-seed/seed-planning-use/seed-planning-units-species-plans>) will receive a lower priority from review committees.

Similarly, where significant orchard redundancy exists, projects may be given a low priority by review committees if a redundant orchard is considered to be a lower priority than another orchard providing seed for the same SPU. Orchard redundancy is defined as seed production capacity held by two or more agencies that are in excess of the current or projected seed demand for a SPU.

Full OTIP eligibility will apply to orchards under situations of redundancy where the total amount of seed in storage (all seed owners combined) is less than a 5-year supply of seed at a genetic worth that is within 25% of the GW of the best available lots for the SPU (i.e. if the best lots have a GWg of 20, then the total seed with a GWg of 15 or more will be used to test for a 5-year supply). When there are 5 or more years of seed in storage with a GW that is within 25% of the GW of the best available lots, projects directed at increasing seed supply may not be eligible to receive funding under this call. This is subject to review committee discretion and proponents who make a compelling case for funding under a situation of redundancy may still be eligible for support under this call.

New for
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Table 1. Forest Genetics Council of BC Seed Planning Units

Seed planning unit (SPU)					Seed planning unit (SPU)				
#	Species	SPZ	Elev. band (m)	Program category	#	Species	SPZ	Elev. Band (m)	Program category
1	Fdc	M	1-900	1	28	Sx	TO	1300-2100	2
2	Cw	M	1-700	1	29	Pli	EK	1500-2000	2
3	Hw	M	1-600	2	30	Sx	TO	700-1500	1
4	Sx	NE	1000-1700	1	31	Fdc	M	900-1200	2
5	Sx	NE	1700-2100	2	32	Pli	EK	800-1500	2
6	Ss	M	1-500	2	33	Cw	M	700-1500	2
7	Pli	NE	700-1600	1	34	Lw	EK	800-1700	1
8	Pw	M/SM	1-1000	1	35	Sx	BV	500-1400	2
9	Ba	M	1-1000	3	36	Bg	M	1-700	3
10	Pli	TO	700-1400	1	37	Fdi	QL	700-1400	2
11	Yc	M	1-1100	2	38	Hw	M north	1-600 (part of SPU 3)	2
12	Pli	PG	700-1400	1	39	Fdi	EK	700-1400	2
13	Lw	NE	700-1600	1	40L	Sx	PR low	<650	2
14	Sx	PG	600-1400	1	40M	Sx	PR mid	650-1200	2
15	Pw	KQ	500-1400	1	41	Fdi	PG	700-1200	2
16	Pli	TO	1400-1600	2	42	Sx	PG	1200-1550	2
17	Pli	BV	700-1400	1	43	Fdi	CT	600-1400	2
18	Pli	CP	700-1300	1	44	Sx	NE	1-1000	1
19	Fdc	SM	200-1000	2	45	Pli	BB/CHL	All	3
20	Pli	NE	1600-2000	2	46	Bl	all int.	all	3
21	Fdi	NE	400-1200	1	47	Bn	M	all	3
22	Fdi	NE	1000-1800	2	48	Broad-leaves	Interior	-	3
23	Sx/Ss	SM/NST	all	3	49	Broad-leaves	Coast	-	3
24	Hw	M	600-1100	2	50	Lw	NE	1200-1800	2
25	Sx	EK	750-1900	2	51	Py	S. Interior	300-1200	2
26	Pli	PG	1400-2000	3	52	Fdi	TO	600-1100	2
27	Cw	SM	200-1000	2	53	Fdi	TO	1100-1600	2

Evaluation and Review

Review Process

All projects which meet application criteria will be reviewed and ranked by either an Interior or Coastal Review Committee. Review committees are selected by the chairs of the Interior Technical Advisory Committee and the Coastal Technical Advisory Committee of the Forest Genetics Council.

Evaluation Criteria

Projects must first be eligible under the criteria set out in Table 3, or demonstrate how they will make a significant contribution to FGC objectives. Final ranking of proposals will be consistent with the investment priorities in Table 1 for each SPU. All projects will be evaluated and ranked based on the following categories and weights.

Cost effectiveness	30%	The cost of producing the product on either a per KPI basis or overall cost in comparison to alternatives. Where innovative approaches are being used, a description of the technique should be detailed in the <i>Procedure</i> and <i>Budget</i> sections of the application.
Impact and value of the product	50%	Product need, impact, and value to advancing overall FGC objectives for the quantity and quality of seed or cutting donor material.
Feasibility, or chance of success	20%	Project feasibility and chance of success based on current practices and knowledge.

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In addition, reviewers will evaluate the resources available to the proponent to implement the proposed project. **Review committees reserve the right to reject proposals that are unclear, do not have accurate budget tables, or provide ambiguous or conflicting information.**

Disbursal of Funds and Financial Considerations

Projects will be funded in accordance with review committee rankings. Projects that fail to meet application criteria, or are not considered by review committees to be worth support, will not be recommended for funding. Where available funds are inadequate to cover all worthwhile projects, committee rankings will be used to determine which projects are funded. Final decisions on funding will rest with the Forest Genetics Council of BC.

The FLNR Tree Improvement Branch will administer contracts and funds for this program. All projects, including those submitted by FLNR staff, are subject to review under the same process and criteria set out in this Call for Proposals. Successful non-FLNR projects will be processed using a contract type suited to the work and services by the proponent. These contracts will be administered in April 2016 after budgets have been allocated.

Performance Indicators and Management

The Land Based Investment Strategy is the funding agency for the Operational Tree Improvement Program. It requires that all projects support "defined provincial objectives through a clear planning process." In addition, it requires performance management to support measures of progress at both the project and provincial level.

The budget table provided as an Excel spreadsheet (see example on pages 17 and 18) contains provision for performance indicators. These must be completed in the proposal and used for reporting. This process simplifies both budget preparation and reporting, and assists reviewers as they evaluate. Performance indicators are listed in Table 2, but proponents are not limited to these indicators if more budget breakdowns are useful.

Proposal information available on-line

The Call for Proposals, Application forms, and budget table are available for download on the Ministry of Forests, Lands and Natural Resource Operations www.gov.bc.ca/OTIPproposals website. If the ministry posts any addendum to the call for proposal package, it will be made by issuing an addendum on the same website already noted.

Submission of applications

An application form and guidelines for completing it are included with this Call for Proposals. **Proponents must use the Excel spreadsheet called *OTIP Budget Table for 2016_17.xlsx* that is available at www.gov.bc.ca/OTIPproposals. Please do not use old formats of the Application Form or the old budget table. Projects submitted with the old budget table format will be rejected.**

The submission deadline is **Wednesday, January 20, 2016 at 4:00 pm**. Completed proposal applications must be submitted electronically to Darrell.Wood@gov.bc.ca. Paper copies will no longer be accepted

Review of proposals will occur in February, with project approval anticipated for mid-March. Ministry contracts for approved, funded projects will be developed in April, 2015 once Ministry budgets have been allocated.

Notwithstanding any other provision in this call for proposals, the contract contemplated by this RFP and the financial obligations of the ministry pursuant to that contract are subject to the availability of funds in accordance with the Financial Administration Act. WorkSafe BC and other insurance coverage such as comprehensive general liability may be required. For additional information contact the Ministry Representative: Darrell Wood, telephone 250-356-1127 or email Darrell.Wood@gov.bc.ca.

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Reporting procedures

Reporting requirements are designed to meet this program's need for accountability and information, while recognizing proponent need for efficiency.

Financial reporting and performance statistics

Financial reports and performance statistics (KPIs) will be required to be available for review, if requested, at quarterly intervals, with a brief final report required at year end. In addition, all successful proponents must be prepared to submit a short report to the FGC Projects Report, upon request. They should be based on quarterly expenditures as laid out in the approved budget. Normally only KPIs and spending information is needed. Deviations from planned KPI achievements of plus or minus 15% should be accompanied with a brief explanation of why the project varied from the planned amount.

Reporting for technical support projects

Technical support projects for which the final product is a report must prepare a comprehensive final report for one-year projects or annual and a final report for multi-year projects. Reports must outline the objectives, material and methods used, key results, and a discussion of the results. Focus must be on the operational applications of the work investigated. Significant deviations from the approved project plan, if any, must be explained. A brief interim report on progress may be required for the period ending September 30th, and either a final or progress report is required for the fiscal year ending March 31st.

Project categories

OTIP projects are normally broken down to specific types of work, as shown in Table 2. The use of these categories and the associated key performance indicators is required for budgeting and reporting. This standardization allows comparisons among projects and simplifies budget development and reporting.

In some situations; however, these categories are inappropriate. In these situations, proponents are asked to develop KPIs that are suitable for the proposed work and to use these KPIs consistently for budget and reporting purposes. Applications for funding must also identify projects using this system.

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Definitions of Operational Tree Improvement Program Investment Categories

Definitions of OTIP investment categories are provided in Table 2. It is recognized that these cannot address all possible situations. Therefore, Review Committees will evaluate specific proposed activities and their associated costs while considering the intent of the OTIP subprogram. In broad terms, the OTIP subprogram is intended to boost the quantity and genetic quality of select seed produced for Crown land in BC. Within this context, proponents must fully explain activities that are new or innovative, and give the rationale for their use.

Table 2. Work categories and descriptions of eligible activities. Projects under category numbers 325, 326, and crop management aspects of 341 and 342 will not normally be supported if there is 5-or-more year supply of seed as described on page 4 (grey-shaded boxes in table indicate eligibility for these categories).

New for
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Category #	Category performance indicator description	Description of eligible activities
321	# of ramets grafted	<ol style="list-style-type: none"> 1. Rootstock production, grafting, and graft maintenance for replacement ramets only 2. Grafting additional ramets from parents selected at an early age with the intent of culling some lower-gain parents following a later progeny-test assessment may be acceptable. Provide a clear argument.
322	# of ramets in holding	<ol style="list-style-type: none"> 1. Holding grafts for ramet replacement in an existing seed orchard 2. Maintenance and pruning grafts held for replacement
323	# of ramets replaced in orchards	<ol style="list-style-type: none"> 1. Planting, establishing local irrigation (not irrigation system), tagging, mulching, etc. 2. For up to six years after planting, the following activities carried out on replacement ramets are eligible for support: (removed crown management) <ul style="list-style-type: none"> • Fertilization (fertilizer purchase and application) • Foliar analysis
324	# of ramets rogued in orchards	<ol style="list-style-type: none"> 1. Ramet removal 2. Reasonable levels of site clean-up following ramet removal <p>Describe the reason for roguing (i.e. increasing gain or spacing for light)</p>
325	# of ramets treated with Supplemental Mass Pollination, and contaminant pollen monitoring	<ol style="list-style-type: none"> 1. Pollen collection or purchase 2. Pollen application 3. Pollen monitoring for assessing contaminant pollen levels, where this is an issue
326	# of ramets induced for cone production	<ol style="list-style-type: none"> 1. Application of hormones using accepted techniques 2. Girdling using accepted techniques
331	# of donor plants for cutting production	<ol style="list-style-type: none"> 1. Production and maintenance of operational cutting donor plants for up to three years after grafting or rooting.
341	# of ramets treated for insects.	<p><i>Methods must be appropriate for the pests and all applications must follow existing PMRA regulations. Proposed off-label uses of pesticides for orchard operations will not be funded. Treatment applies only to the control of cone and seed pests and to pests that impact ramet health and future cone production.</i></p> <ol style="list-style-type: none"> 1. Pesticide purchase 2. Application of pesticides 3. Physical activities to remove or reduce pests such as clipping branches or removal of pitch moth
342	# of ramets treated for non-insect pests	<p><i>Methods must be appropriate for the pests and all applications must follow existing regulation. Applies only to the control of cone and seed pests and to pests that impact ramet health and future cone production.</i></p> <ol style="list-style-type: none"> 1. Control of diseases that impact ramet health and/or seed production 2. Control of vertebrates that impact ramet health and/or seed production (baiting for gophers will no longer be supported)

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343	# of ramets monitored for pests	1. Surveys for pest control purposes
350	Technical support projects: # of reports on project progress and results	1. Projects identified in OTIP eligibility lists 2. Projects not identified in OTIP eligibility lists may, at the discretion of review committees, be eligible for funding if they contribute significantly to FGC objectives. Good arguments for support must be provided in proposals.

Standardization of Costs – Interior Projects only

Due to the large numbers of ramets in seed orchards and similar nature of work across various seed orchard sites, some costs are standardized for interior orchards. This provides a fair basis for budget development for similar proposals at different orchard locations. If there is a good reason for a higher rate due to some circumstance specific to an orchard, the higher rate should be presented with a clear explanation of why a higher rate is justified. Review committees will only allow higher rates when compelling arguments are presented. Where proponents feel the rate is higher than they need for their site, then an appropriate lower rate should be used.

Table 3. Standardized costs for interior seed orchard activities. Costs set out in this table cannot normally be exceeded unless compelling reasons are given in the proposal. Please use lower costs if applicable to your operation.

Category #	Category performance indicator description	Amount (Costs in this table do not include an administration fee)
321	# of ramets grafted	Too varied to standardize
322	# of ramets in holding	Too varied to standardize
323	# of ramets replaced in orchards	Too varied to standardize. Information required to show previous funds provided, the history of the activity and the mortality rate.
324	# of ramets rogued in orchards	Too varied to standardize. Information required to show previous funds provided, the history of the activity and the mortality rate.
325	# of ramets treated with Supplemental Mass Pollination	Pollen collection: <ul style="list-style-type: none"> • Sx and Yellow Pine - \$240.00 per litre of pollen • Pli - \$450.00 per litre of pollen • Fdi - \$650.00 per litre of pollen • Other species too variable in costs to standardize
326	# of ramets induced for cone production	\$3.00 per orchard ramet for stem injections of GA4/7 or foliar applications of GA3. \$1.00 per orchard ramet for stem girdling
331	# of donor plants for cutting production	Too varied to standardize
341	# of ramets treated for insects	<ul style="list-style-type: none"> • Leptoglossus – \$0.27 per ramet • Adelgids – \$0.50 per ramet • Spidermites – \$0.27 per ramet • Dioryctria – \$2.80 per ramet • Leader weevil – \$1.15 per ramet • Pitch moth – \$0.85 per ramet (only funded up to ramet age 10)
342	# of ramets treated for non-insect pests	<ul style="list-style-type: none"> • Fungicides – \$0.25 per ramet • Gophers – \$0.30 per ramet
343	# of ramets monitored for pests	Surveys for pest control purposes to a maximum of \$1200 per orchard or \$0.60 per ramet , whichever is less.

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New for
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Table 4. OTIP Eligibility for INTERIOR seed planning unit by work category. Only work types marked with an “x” or listed under “350 Technical Support” will normally be eligible under this call. Grey-shaded boxes indicate SPUs with less than a 5-year supply of high-GW seed and eligibility for projects under categories 325 and 326, and under crop management aspects of 341 and 342.

Seed Planning Unit (SPU)				SO #'s	Average 5 Yr Use	FGC Objective #3 (75% Select Seed)	Years Class A seed in storage (>GW 4)	Current Top GW for the SPU	75% of Top GW	Num Seedlings (mm) greater than 75% GW	FGC Objective #4 (20% GW G)	Year's in storage GW > 75% of orchard capacity	320 Quality / Quantity Boosts						340 Pest Management			350 Tech Sup.			Project Descriptions					
													321	322	323	324	325	326	341	342	343	351	352	353						
#	Spp	SPZ	Elev										Grafting	Hed/grafts	Replacement	Regulating	SMP	Induction	Insect control	Non-Insect control	Moni-toring									
4	Sx	NE	1000-1700	301, 305	9.2	5.4	22	16.5	3.0	0.3					X			X	X	X	X								Cone harvest timing	
5	Sx	NE	1700-2100	302, 306	1.2	64.9	20	15.0	5.0	4.2					X	X			X	X	X									
7	Pli	NE	700-1600	307, 313, 337, 347	3.5	6.1	20.0	15.0	4.1	1.2						X	X		X	X	X		Methods to increase Pli seed set						Cone harvest timing	
10	Pli	TO	700-1400	311, 338, 350	5.6	0.8	18.0	13.5	3.8	0.7						X	X	X	X	X	X		Methods to increase Pli seed set						Cone harvest timing	Cone Induction Trial
12	Pli	PG	700-1400	220, 222, 236, 237, 352, 244	26.7	0.1	17.0	12.8	0.0	0.0	X	X	X	X	X	X	X	X	X	X	X		Methods to increase Pli seed set						Cone harvest timing	Cone Induction Trial
13	Lw	NE	700-1400	332	2.5	5.4	29.0	21.8	12.5	5.0					X				X	X	X								Cone harvest timing	
14	Sx	PG	600-1400	211, 247	35.1	2.6	27	20.3	14.0	0.4	X	X	X				X	X	X	X	X									
15	Pw	KQ	500-1400	335, 609, 351	0.9	3.7	65.0	48.8	3.3	3.7							X		X	X	X									
16	Pli	TO	1400-1600	310, 339	8.1	0.3	20.0	15.0	2.3	0.3								X	X	X	X		Methods to increase Pli seed set						Cone harvest timing	
17	Pli	BV	700-1400	219, 228, 234, 240, 230, 245	24.6	0.3	16.0	12.0	2.1	0.1					X		X	X	X	X	X		Methods to increase Pli seed set						Cone harvest timing	
18	Pli	CP	700-1300	218, 223, 238, 241, 246	16.4	0.6	22.0	16.5	0.2	0.0	X	X	X				X	X	X	X	X		Methods to increase Pli seed set						Cone harvest timing	Cone Induction Trial
20	Pli	NE	1600-2000	349	1.6	0.0	15.0	11.3	0.0	0.0							X	X	X	X	X									
21	Fdi	NE	400-1000	321	3.5	0.3	27.0	20.3	0.9	0.3	X	X	X					X	X	X	X									
22	Fdi	NE	1000-1800	324	2.2	0.2	34.0	25.5	0.3	0.2								X	X	X	X								Cone harvest timing	
25	Sx	EK	750-1900	304R	3.7	20.2	28	21.0	55.0	14.9	X			X																
28	Sx	TO	1300-2100	343	5.7	1.0	23.0	17.3	0.0	0.0							X	X	X	X	X									
30	Sx	TO	700-1500	342	1.9	0.8	26.0	19.5	1.2	0.6							X	X	X	X	X									
32	Pli	EK	800-1500	340	2.4	0.2	10.0	7.5	0.3	0.1							X	X	X	X	X		Methods to increase Pli seed set						Cone harvest timing	
34	Lw	EK	800-1700	333	3	17.2	28.0	21.0	49.0	16.3									X	X	X									
35	Sx	BV	500-1400	207, 208, 229, 620, 243	11.3	5.4	33.0	24.8	0.2	0.0	X	X	X	X	X	X	X	X	X	X	X								Cone harvest timing	
37	Fdi	QL	700-1400	226, 232	0.9	0.8	29.0	21.8	0.7	0.8	X	X	X				X	X	X	X	X									
39	Fdi	EK	700-1400	336	0.7	0.0	25.0	18.8	24.0	0.0							X	X	X	X	X								Cone harvest timing	
40L	Sx	PR low	<650	213	0.6	0.6	7.0	5.3	0.0	0.0						X	X	X	X	X	X									
40M	Sx	PR mid	650-1200	212	6.6	1.3	23.0	17.3	8.2	1.2							X	X	X	X	X									
41	Fdi	PG	700-1200	225, 233	1.2	0.4	30.0	22.5	0.5	0.4	X	X	X	X	X	X	X	X	X	X	X									
42	Sx	PG	1200-1550	239	3.4	14.6	14.0	10.5	49.5	14.6							X	X	X	X	X									
43	Fdi	CT	600-1400	231	1.1	3.1	22.0	16.5	0.5	0.4	X	X	X				X	X	X	X	X									
44	Sx	NE	1-1000	341	0.9	5.5	23.0	17.3	5.0	5.5						X		X	X	X	X								Cone harvest timing	
50	Lw	NE	1200-1800	353	0.5	0.4	13.0	9.8	0.2	0.4							X	X	X	X	X									
51	Py	S. Int.	all	346, 345	0.5	0.0	9.0	6.8	0.0	0.0	X	X	X	X	X	X	X	X	X	X	X		pollen contamination and monitoring							
52	Fdi	TO	600-1099	355	0.6	0.0	15.0	11.3	0.0	0.0									X	X	X									
53	Fdi	TO	1100-1600	354	1.9	0.0	15.0	11.3	0.0	0.0									X	X	X									

Operational Tree Improvement Program

Table 5. OTIP Eligibility for COASTAL seed planning units, by work category. Only work types marked with an “x” or listed under “350 Technical Support” will normally be eligible under this call. Grey-shaded boxes indicate SPU’s with less than a 5-year supply of high-GW seed and eligibility for projects under categories 325 and 326, and under crop management aspects of 341 and 342.

SPU #	1	2	3	6	6	8	11	19	24	31	54
Species and zone	Fdc M	Cw M	Hw M	Ss M WR	Ss M QCI	Pw M ≥M50	Yc M	Fdc SM	Hw M High	Fdc M High	Dr M
Seed in storage with GW≥5 (kg)	861.3	121.8	64.0	14.9	2.4	87.8	0.0	0.0	65.9	87.5	0.0
Potential # seedlings with GW≥5 (mm)	32.3	29.1	12.0	2.6	0.4	1.2	0.0	0.0	13.2	3.3	0.0
Potential # seedlings with GW>9 (mm)	14.1	13.4	4.6	2.6	0.0	1.2	0.0	0.0	0.9	0.0	0.0
5-year average seed use (mm)	15.4	7.3	0.9	1.0	0.5	0.6	1.3	1.1	0.4	0.5	0.4
GW≥5 seed supply in storage (years)	2.1	4.0	13.3	2.6	0.8	2.0	0.0	0.0	33.0	6.6	0.0
ORCHARD PRODUCTION CATEGORIES											
321 Grafting	X	X			X	X		X		X	
322 Hold Grafts	X	X			X	X		X		X	
323 Ramet replacement	X	X			X	X		X		X	
324 Roguing	X	X	X	X	X	X		X	X		X
325 SMP	X	X		X	X	X		X	X	X	X
326 Induction	X	X		X	X	X		X		X	X
331 Donors		X					X				
332 Cuttings (scion)											
333 Propagules											
341 Insect control	X	X		X	X	X	X	X		X	X
342 Non-insect Control											
343 Pest Monitoring	X	X	X	X	X	X	X	X	X	X	X
ORCHARD TECHNICAL SUPPORT											
350 Pollen Contamination	X	X						X		X	X
350 Selfing / Clonal contrib'n	X	X						X			
350 Pollen handling											X
350 Induction Protocol											X
350 URMULE GA	X	X	X	X	X		X	X	X	X	
350 Vegetative Propagation							X				
350 Seed production loc'n							X				
350 Nursery Issues	X										
350 Seed Handling: Germination		X									
350											

Operational Tree Improvement Program

OTIP Application Form EXAMPLE ONLY -USE FORM AVAILABLE AT: [Tree Improvement Branch - OTIP](#)

Name of Applicant/Project Leader

Legal Name of Organization:

Mailing Address:

Telephone:

Fax:

E-Mail Address:

Financial Officer:

Project number (provide the existing number if this is a recurring project, otherwise leave blank):

Is this a SelectSeed orchard? (yes or no):

Project Title:

Outline of Project (use attached outline)

New for
2016/17

Seed Planning Unit			Annual SPU Seedling Need:	Years seed GW > 75% of potential	Orchard information (list all orchards considered in this application)				
Species	Seed Zone	Elevation band			Orch #	Avg. ramet age	GW	Avg. ramet ht. (m)	# ramets in orch.
Project Duration:			Project year:						
Total Project Cost requested for FY 2016/17:									
Anticipated future budget needs:									
FY 2017/18: \$			FY 2018/19: \$			FY 2019/20: \$			

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Project Description

Please use the following headings for all project outlines.

Needs:

Describe specific seed needs or tree improvement benefits to be achieved (e.g., increased production, genetic gain) and how this project will support Forest Genetics Council objectives.

Objectives:

Include production target, regeneration type (e.g., seedling), projected genetic gain, and target date for completion.

Procedure:

Briefly (up to 2 pages) describe technical details of the project, including methodology and projected dates for completing specific activities. Where more than one orchard is listed for the same SPU, **list and describe activities by orchard so that reviewers will know which activity is being undertaken in each orchard.**

Location:

List facilities and/or orchard sites where the project activities will take place.

Output and Deliverables:

List the specific products to be produced as a result of this investment.

Budget:

Complete the attached budget form and provide a detailed cost breakdown for the first year.

Who will benefit from this work?

Who are the direct clients?

Project Team:

List organization of project team members are with, and include the contact name, address, and phone number for each.

Signature Block:

Name: _____

Signature: _____

Operational Tree Improvement Program

Points to assist with completion of the application

- Remember that reviewers can only judge the application on the information provided.
- Budgets must be prepared in the Excel budget spreadsheet entitled *OTIP Budget Template 2016-17.xls*. This spreadsheet is available from the Tree Improvement Branch.
- Applications are not limited to the space provided in the application form. Proponents are encouraged to use the space needed to explain activities, but to avoid providing information that is widely available and would already be known to informed reviewers.

Grouping orchards in an application

Operational production applications are designed to cover all activities for a single seed planning unit within an operation (i.e. SPU 17 Pli BV low elevation orchards at a specific site). Proponents may include more than one orchard in an application, **provided project details are described for each orchard separately**.

Technical Support proposals that cover multiple SPU should contain one application with all pertinent information for reviewing and evaluating the proposal. **List all the SPU to which it applies.**

Sample proposals

Appendices B and C contain sample proposals for the Seed Production and Technical Support sub-programs. Please review these examples before preparing your proposals.

Guidelines for Completing the Application Form

Name of Project Leader:	Indicate the name and position of the person responsible for the project. All correspondence regarding the project will be directed to the project leader.
Legal name of organization: Address, telephone, e-mail address:	Information for legal and communications purposes.
Financial officer:	Name of the person in your organization responsible for project accounting.
Project number:	If this proposal is for an existing, recurring project, provide the number, otherwise leave blank
Project title:	Please give the project a succinct, descriptive title unique to the proposed project.
Outline of project:	Briefly describe the project and its goals (one paragraph).
Seed Planning Unit (species / seed zone / elevation band):	List the Seed Planning Unit at which this proposal is directed. Normally applications are directed at only one SPU; for Technical Support projects that cover more than one SPU, list all SPU on a separate page.
Annual SPU seedling Need	Indicate the annual seed needs required for this Seed Planning unit as shown in species plans available at http://www2.gov.bc.ca/gov/content/industry/forestry/managing-our-forest-resources/tree-seed/seed-planning-use/seed-planning-units-species-plans
Years of seed with GW > 75% of potential	Input information from tables 4 or 5 in the appropriate cell
Orchard #, GW, and # ramets	Information is available in species plans
Orchard average age	Estimate the average age from planting for all ramets in the orchard
Average ramet size	Estimate the average height in meters for orchard ramets
Project duration:	Indicate the full duration of the project.
Project year	If this is a multi-year project indicate the current year of the project. (i.e. year 3 of 5)

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Total project cost:	Give total estimated project cost. Include specific costs for the 2016-17 fiscal year, and subsequent years to the project. Multi-year projects will be reviewed each year and will require a detailed budget to be drawn up for each year.
Needs:	Explain how this project will support FGC objectives; i.e. how will your project advance the amount and/or genetic quality of seed produced and used in the SPU.
Objectives:	State project objectives.
Procedure:	Provide technical details for the project and indicate projected dates of completion for various activities. Items listed in the budget should be described here. List activities for orchards separately if more than one orchard is covered in the proposal. For Operational projects keep this brief. For Technical Support projects (350 level) greater detail is required. 1-2 pages maximum.
Location:	Provide the location(s) and/or specific orchard(s) where the project will be carried out.
Output and deliverables:	State what will be delivered. i.e. target production number, regeneration type (seedling, cutting), projected genetic gain, projected target date for completion and/or availability of material for reforestation. Materials must be suitable for registration for use on Crown Lands.
Budget:	Provide a complete list of all expected costs using the Excel spreadsheet provided. Include sub-contracts, employee costs, and equipment rental and material costs. Budget guidelines are provided on page 19.
Who will benefit from this work?	Tie benefits and outputs to specific clients where possible.
Project team/partners:	List all key partners who will be involved in implementing the project, and their roles. Information should include the person's name and organization. Technical support project teams should include a person who will use the results.
Signature block:	Manager or person of authority within the organization who can authorize implementation.
Project category (budget spreadsheet)	Provide the category(s) of work to be undertaken, (i.e. roguing, SMP, insect control). Only use project category numbers in Table 2 (i.e. 324 for roguing), as shown in the budget spreadsheet.
Key performance Indicators (budget spreadsheet)	From the <i>OTIP Eligible Activities</i> tables, indicate the performance indicator that applies to the project category in your proposal. If Key Performance Indicators (KPI) are not included, the proposal will not be forwarded to the review committee. Use the KPI's listed in Table 2. Additional KPI's may be used if it is helpful and logical to do so. Explain what the KPI is. Most KPI's are already set out in the budget spreadsheet and should be used.
Number of KPI to be done (budget spreadsheet)	Show the amount of work to be done using the appropriate KPI (i.e. for category 324 roguing, show the number of ramets to be removed from the orchard).

Avoiding Difficulties

Evaluation will focus on impact and value. The review committees face the task of evaluating a considerable number of proposals, so please fill in each section briefly and only include information that reviewers will need to evaluate the work. Remember that reviewers understand orchard work and don't need to be told what is obvious. Presenting key information in bullet form is useful. The following types of information are helpful:

- Key performance indicator by project category using only listed indicators
- How the project supports FGC objectives
- How the final product will be used.
- Specific activities
- Where non-standard approaches are proposed, please explain.
- If funding has been provided previously for the same activity, please provide information regarding success level
- For category 350 projects (technical support), please provide adequate detail to allow review committees to understand project objectives, application and methods.

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OTIP Budget Spreadsheet for interior seed orchards

This is available in an Excel file format. Similar spreadsheets are available for coast orchards and for technical support projects. Non-green portions of the spreadsheet will automatically fill in when values are entered in green cells.

OTIP budget input spreadsheet for INTERIOR ORCHARDS (Page 1/2)

PROJECT #

(insert project number if known)

Project title:					
Project leader name		SPU #	Species	Zone	Elev.
Instructions: - Enter information only in green cells - Complete only needed rows - Provide a breakdown of activities in each project category if it will help the review committee better understand your project (see note to the right) - Explain reasons for any deviations from standard costs in Comments Section			Information: - Totals and \$/KPI calculate automatically. You can't enter data in protected non-coloured cells. - If more information is needed, put it in the comments section at the bottom and refer to the category name and activity description in the budget table. - if you need more lines for a category, enter the category # and name in any blank line - Use YELLOW lines if you deviate from standard costs. EXPLAIN WHY IN COMMENT SECTION		

Project category				Costs (\$)										
#	Name	Activity description (break down as needed)	Performance measure description (KPI) add more KPI if needed	Cost Qtr.	# KPI	Salary	Equip.	Travel	Materials & supplies	Other	Admin.	Total	\$ per KPI	
321	Grafting	Grafts for ramet replacement	# of ramets to be grafted											
322	Holding grafts		# of grafts to be kept in holding beds											
323	Ramet replacement	Planting in existing orchard	# of ramets to be replaced in the orch.											
324	Roguing	Removal of old ramets	# of ramets to be removed from the orch.											
325	SMP The allowed amount per liter collected is set for some species. Enter the # liters to collect)	Ramets treated	# of ramets to be treated with SMP											
		Pollen collection Pli	Liters of pollen collected (\$450/L)											
		Pollen collection Sx	Liters of pollen collected (\$240/L)											
		Pollen collection Fdi	Liters of pollen collected (\$650/L)											
		Pollen collection all other spp.	Liters of pollen collected											
326	Cone induction	Ramets trt with hormones at \$3.00	# of ramets to be induced											
		Girdling at \$1.00	# ramets to be girdled											
331	Cutting donor stock management	Cutting donor stock management	# of cutting donors to be managed											
341	Insect control Amount per treatment is set for most spp. Enter the # of ramets to treat for standard pests shown. For other pests enter species, KPI and costs below. Enter here if your costs differ from standard costs. Explain why below. For multiple trtmts., KPI = # ramets x # trtmts.	Spray for Leptoglossus at \$0.27	# of ramets to be treated											
		Spray for MPB at \$1.70	# of ramets to be treated											
		Spray for Adelgids at \$0.40	# of ramets to be treated											
		Spray for spidermites at \$0.27	# of ramets to be treated											
		Spray for Dioryctria at \$2.80	# of ramets to be treated											
		Leader weevil removal at \$1.15	# of ramets to be treated											
		Pitch moth removal at \$0.85	# of ramets to be treated											
342	Non-insect pest control)		# of ramets to receive pest control											
343	Monitoring	Pest survey	# of ramets to be monitored											
Total costs						-	-	-	-	-	-	-		
TOTAL PROJECT COST												-		

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OTIP budget input file for INTERIOR ORCHARDS (Page 2/2)

PROJECT: SPU

Project title:				
Project leader name:	SPU #	Species	Zone	Elev.

		Category	Salary	Equip.	Travel	Mat./Sup.	Other	Admin.
Loaded hourly rates		321 Grafting						
Worker type	Rate/hr	322 Holding grafts						
		323 Ramet replacement						
		324 Roguing						
		325 SMP						
Cost by Quarter		326 Cone induction						
Q1 (April - June)		331 Cutting donor stock						
Q2 (July - Sept.)		341 Insect control						
Q3 (Oct. - Dec.)		342 Non-insect pest control)						
Q4 (Jan. - March)		343 Monitoring						
		Total	0.00	0.00	0.00	0.00	0.00	0.00

Comments section

Category	Activity description	Comment

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Budget Guidelines for OTIP proposals

Section A—Salaries and benefits

Salaries should conform to standards common for the activity type (i.e. seed orchard work). The review committee(s) may reduce salary requests if they are too high. Claim only actual, direct salaries (i.e. the amount actually paid to an employee, not charge-out rates). Salary rates must correspond to base rate only, and cannot include any bonus or pay-for-performance. Actual benefit costs of employees (e.g. employment insurance, Canada pension, medical, vacation pay to a maximum of three weeks per year, pro-rated yearly, etc.) will be considered eligible costs. Piece work payment is acceptable, but must be described.

If a person working on the project is a full-time employee of the organisation, the funding requested should be calculated by dividing actual annual salary by 230 days, multiplied by the number of days the person worked on the project. **Please state the rates at which employees are paid.**

If the project requires hiring someone on contract, funding can be based on an hourly, daily, weekly, monthly, or unit rate. In cases where the project team hires out a contractor and or a contractual employee, charge-out fees are eligible.

Applicants may apply for appropriate and reasonable costs for preparation of approved projects. This applies only where a consultant has been hired to prepare proposals or an in-house employee has been hired for the specific purpose of doing the project work. These costs should be listed in the *Other* category.

Section B—Equipment

Only equipment that is directly related to performing the proposed project and costs less than \$1,000 is eligible for funding.

The acquisition of capital equipment is ineligible for funding under this program. Equipment needed may be leased. The value or depreciation costs of existing equipment or facilities may not be claimed. Similarly, proponents may not charge lease or rental fees for equipment owned by them that are used in projects.

All proposed expenditures in this category must be itemized separately.

Section C—Travel

Only expenses for work travel that is directly related to technical aspects of an approved project are acceptable. British Columbia provincial government rates will be considered maximal. Allowable travel expenses are based upon the Treasury Board's Group I rates for public service employees. Please visit <http://pss.gov.bc.ca/psb/travel/employee-travel-and-vehicle-rental.html> to view current rates. Total travel charges should be itemized showing purpose, destination and costs.

This program does not fund conference travel and related expenses unless specifically planned as part of the project's extension component.

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The following rates are in effect:

Transportation

The most economical method of transportation should be utilized wherever possible.

Automobile	Mileage rates, all vehicles: \$0.52/km
Air	Economy class. Airfare receipts and tickets should be retained. Project personnel wishing to fly business or first class are responsible for any additional costs for upgrading.
Ferry	Receipts should be retained
Taxi	The use of taxis should be kept to a minimum. Retain receipts.

Accommodation and meals

The maximum allowable nightly rates for accommodations (before taxes) must not exceed those posted and can be found at

<http://www.pc.gov.bc.ca/travel/Hotels/AccommodationListing/INDEX.html>

Please retain receipts for paid hotel accommodation. In situations where private lodging is arranged the daily maximum stipend that can be claimed is \$30.

The allowable claims for meals are: breakfast \$11.50, lunch \$13.25, and dinner \$22.25. Receipts should be retained for audit, but should not be submitted with expense reports.

Section D—Material and supplies

Material and supplies used to carry out the proposed project may include raw materials, tools, and software. Expenditures in this category are eligible and must be itemized.

Section E—Other expenses

Include all contract costs and all other items. List individual contracts.

Section F—Administrative and other costs

The Forest Genetics Council will contribute to incremental administrative costs for an approved project, to a maximum of five (5) per cent of total

Operational Tree Improvement Program

project costs. These are calculated automatically in the budget spreadsheet.

Publications, reports and memberships

Subscriptions to scientific journals, books and other publications will not be considered, nor will membership fees to societies. However, costs incurred in preparing progress reports and for extension and publication of results (with acknowledgement of the Forest Genetics Council Operational Tree Improvement Program) may be included. Charges for journal reprints and large document reproduction are eligible project costs.

Personnel hiring

Costs for advertising, travel, or other expenses associated with hiring new personnel for projects are not eligible.

Entertainment

Costs for entertainment are not eligible.

Marketing

Costs for product marketing or commercialization are not eligible.

Patent

Costs for obtaining a patent are not eligible.

Applicable PST/GST

Only net GST costs (i.e., those costs not eligible for rebate) may be claimed as a project expense.

Receipts and records:

It is the responsibility of the project leader to keep all pertinent financial records and receipts for a period of 7 years for possible audit purposes.

Appendix A: Sample Application for a Seed Production Project

Name of Applicant/Project Leader

Z. Smith, Seed Orchard Manager

Legal Name of Organization:

United Forestry Ltd

Mailing Address:

3322 Red-out Road
Vernon BC V1B 2C8

Telephone: **250-266-5666**

Fax: **250-566-5667**

E-Mail Address: zsmith@united.bc.ca

Financial Officer: **A. Persona**

Project number (provide the existing number if this is a recurring project, otherwise leave blank):

SPU1708

Is this a SelectSeed orchard? (yes or no): No

Project Title:

Boosting seed production and gain in Red-out orchards 997 and 999

Outline of Project (use attached outline)

Boosting seed production and gain in Red-out Orchard 997 by:

- Improving orchard composition through grafting and transplanting.
- Improving orchard seed quantity and quality through SMP.
- Improving orchard productivity through pest management and other management activities.

Seed Planning Unit			Annual SPU seedling need (mm):	Years seed GW > 75% of potential	Orchard information (list all orchards considered in this application)				
					Orch #	Avg. ramet age	GW	Avg. ramet ht. (m)	# ramets in orch.
Species Pli	Seed Zone BV	Elevation band 700-1400m	24.6	0.3	997	12	14	4	2831
					999	4	19	1.5	3215
Project Duration: 1 year			Project year: 2016/17						
Total Project Cost requested for FY 2016/17: \$11,030.25									
Anticipated future budget needs:									
FY 2017/18: \$			FY 2018/19: \$			FY 2019/20: \$			

New for 2016/17

Project Details

Needs

The species plan for SPU 17 shows that total seedling production is not currently meeting estimated seedling needs. To meet FGC objectives for select seed use and genetic gain, class A seed from this SPU is needed.

Objectives

Orchard 997 - Produce a seed crop of 2.3 million plantables with a GWg of 14 in 2016 and improve orchard parental composition to boost average GWg to 22.

Orchard 999 - Supplement pollen and produce a seed crop of 0.2 million plantables with a GWg of 19 in 2016.

Procedure

Grafting:

- **Orchard 997:** higher gain ramets for upgrading orchard genetic quality (to be planted in 2018) will be grafted on site using scion from selected parent trees recommended by the FLNR Pli breeder.

Roguing:

- **Orchard 997:** Roguing is to remove lower-gain ramets for replacement with new higher-gain ramets.

Planting grafts:

- **Orchard 997:** Planting to orchard positions using ramets grafted in previous years. These will replace older low-gain ramets currently in the orchard

Supplemental mass pollination:

- **Orchard 999:** SMP will be carried out on younger ramets and on clones with both early and late reproductive phenologies. Pollen will come from previous and current-year collections made from the higher breeding value parents in the orchard.

Pest management and survey:

- **Orchard 999:** pitch moth will be hand removed.
- **Orchards 997 and 999:** Leptoglossus will be treated with 2 sprays of Matador, should surveys indicate Leptoglossus populations are high enough to warrant spraying.

Location

United Seed Orchards, Red-out Road Site.

Output and Deliverables

Orchard 997:

- Seed crop capable of producing 2.3 million plantables
- Replacement of 98 ramets with higher-gain parents
- Grafting 173 ramets of higher gain parents
- Seed crop capable of producing 0.2 million plantables
- Maintaining orchard health through pitch moth removal

Increased average breeding value of orchard 997 from 11 to 16%.

Greater amounts of higher gain Pli seed will be produced to meet the requirements for the SPU due to better pollination through SMP and through pest management. The production target for

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this project is to produce an additional 500,000 plantables for crown land. Seed will be used by licensees operating in the SPU.

Budget

See the attached budget page.

Who will benefit from this work?

Lodgepole pine seed users in the Bulkley Valley SPU.
Forest Genetics Council by meeting their goals.

Project Team

Dr. I.M. Really-Smart, Entomologist.

Employees of United Interior Seed Orchards.

Signature Block

Name (authorization for application): **Z. Smith**

Signature: _____

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(go to the other tab for coastal orchards or for Technical Support projects)

OTIP budget input spreadsheet for INTERIOR ORCHARDS (Page 1/2)

PROJECT # **SPU 1308** (insert project number if known)

Project title:	Boosting seed production and gain in Red-out orchards 997 and 999								
Project leader name		SPU #	17	Species	Pli	Zone	BV	Elev.	700-1400
Instructions:					Information:				
- Enter information only in green cells - Complete only needed rows - Provide a breakdown of activities in each project category if it will help the review committee better understand your project (see note to the right) - Explain reasons for any deviations from standard costs in Comments Section					- Totals and \$/KPI calculate automatically. You can't enter data in protected non-coloured cells. - If more information is needed, put it in the comments section at the bottom and refer to the category name and activity description in the budget table. - if you need more lines for a category, enter the category # and name in any blank line - Use YELLOW lines if you deviate from standard costs. EXPLAIN WHY IN COMMENT SECTION				

Project category		Activity description (break down as needed)	Performance measure description (KPI) add more KPI if needed	Cost Qtr.	# KPI	Costs (\$)							\$ per KPI
#	Name					Salary	Equip.	Travel	Materials & supplies	Other	Admin.	Total	
321	Grafting	Grafts for ramet replacement	# of ramets to be grafted	1	173	1,200.00			100.00		65.00	1,365.00	7.51
322	Holding grafts		# of grafts to be kept in holding beds										
323	Ramet replacement	Planting in existing orchard	# of ramets to be replaced in the orch.	1	98	350.00	100.00		50.00		25.00	525.00	5.10
324	Roguing	Removal of old ramets	# of ramets to be removed from the orch.	3	98	200.00	800.00		90.00		54.50	1,144.50	11.12
325	SMP The allowed amount per liter collected is set for some species. Enter the # liters to collect)	Ramets treated	# of ramets to be treated with SMP	1	505	1,600.00				200.00	90.00	1,890.00	3.56
		Pollen collection Pli	Liters of pollen collected (\$450/L)	1	1	450.00					22.50	472.50	450.00
		Pollen collection Sx	Liters of pollen collected (\$240/L)										
		Pollen collection Fdi	Liters of pollen collected (\$650/L)										
		Pollen collection all other spp.	Liters of pollen collected										
326	Cone induction	Ramets trt with hormones at \$3.00	# of ramets to be induced										
		Gridling at \$1.00	# ramets to be girdled										
331	Cutting donor stock management	Cutting donor stock management	# of cutting donors to be managed										
341	Insect control Amount per treatment is set for most spp. Enter the # of ramets to treat for standard pests shown. For other pests enter species, KPI and costs below. Enter here if your costs differ from standard costs. Explain why below. For multiple trtmts., KPI = # ramets x # trtmts.	Spray for Leptoglossus at \$0.27	# of ramets to be treated	2	12,000	1,440.00			1,800.00		162.00	3,402.00	0.27
		Spray for MPB at \$1.70	# of ramets to be treated										
		Spray for Adelgids at \$0.40	# of ramets to be treated										
		Spray for spidermites at \$0.27	# of ramets to be treated										
		Spray for Dioryctria at \$2.80	# of ramets to be treated										
		Leader weevil removal at \$1.15	# of ramets to be treated										
		Pitch moth removal at \$0.85	# of ramets to be treated		2,500	2,125.00			-		106.25	2,231.25	0.85
342	Non-insect pest control)		# of ramets to receive pest control										
343	Monitoring	Pest survey	# of ramets to be monitored										
Total costs						7,365.00	900.00	-	2,040.00	200.00	525.25	11,030.25	
TOTAL PROJECT COST											11,030.25		

OTIP budget input file for INTERIOR ORCHARDS (Page 2/2)

PROJECT: SPU SPU 1308

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OTIP budget input file for INTERIOR ORCHARDS (Page 2/2)

PROJECT: SPU SPU 1308

Project title: Boosting seed production and gain in Red-out orchards 997 and 999							
Project leader name:				SPU # 17	Species Pli	Zone BV	Elev. 700-1400

		Category	Salary	Equip.	Travel	Mat./Sup.	Other	Admin.	Total
Loaded hourly rates		321 Grafting	1,200.00			100.00		65.00	1,365.00
Worker type	Rate/hr	322 Holding grafts							
Orchard labour	\$18.50	323 Ramet replacement	350.00	100.00		50.00		25.00	525.00
Technician	\$32.00	324 Roguing	200.00	800.00		90.00		54.50	1,144.50
		325 SMP	2,050.00				200.00	112.50	2,362.50
Cost by Quarter		326 Cone induction							
Q1 (April - June)	\$4,252.50	331 Cutting donor stock							
Q2 (July - Sept.)	\$3,402.00	341 Insect control	3,565.00			1,800.00		268.25	5,633.25
Q3 (Oct. - Dec.)	\$1,144.50	342 Non-insect pest control)							
Q4 (Jan. - March)		343 Monitoring							
		Total	7,365.00	900.00	0.00	2,040.00	200.00	525.25	11,030.25

Comments section

Category	Activity description	Comment
323	Ramet removal	Contract costs for excavator to remove trees

Note that if all or part of the project does not proceed due to lack of a crop or for any other reason, then only costs incurred for work actually done may be claimed.

Appendix B: Sample Application for a Technical Support Project

Name of Applicant/Project Leader

Marilyn Wilson

Legal Name of Organization:

Wilson Technical Support

Mailing Address:

Marilyn Wilson
5900 Dumont Drive
Duncan, BC V9L 1L7

Telephone: 250-748-7530

Fax: 250-748-5667

E-Mail Address: _mwilson@shock.ca

Financial Officer: A. Persona

Project number (provide the existing number if this is a recurring project, otherwise leave blank):

SPU0288

Is this a SelectSeed orchard? (yes or no): No

Project Title:

Development of vegetative propagation techniques for western redcedar.

Outline of Project (use attached outline)

Cultural techniques for production of stock plants and rooted cuttings will be tested at a commercial nursery. Recommendations based on test results will be reported to the tree improvement and forest nursery communities through extension reports and meetings, and operational cutting crops will be produced.

Seed Planning Unit			Annual SPU seedling need (mm):	Years seed GW > 75% of potential	Orchard information (list all orchards considered in this application)				
Species	Seed Zone	Elevation band			Orch #	Avg. ramet age	GW	Avg. ramet ht. (m)	# ramets in orch.
Cw	2	1-700	7.3	2.0	199	14	22	2.6	451
Project Duration:			Project year:						
1 year			2016/17						
Total Project Cost requested for FY 2016/17: \$22,133									
Anticipated future budget needs:									
FY 2017/18: \$ 10,133			FY 2018/19: \$6,000			FY 2019/20: \$6,000			

New for 2016/17

Project Detail

Needs

The FGC goal for western redcedar is 100% planting of genetically selected material with 21% volume gain by 2020. Innovative technologies will be required to realistically meet this goal.

Elite families can be propagated by controlled crossing in seed orchards, which would eliminate selfing. The seed could then be bulked up through rooted cuttings. However, protocols for operational production of stock plants and cuttings are lacking for this species.

Specific questions include:

- which stock-plant cultural regimes will produce the most good-quality cuttings;
- which rooted cutting cultural regimes will produce stock plants that are equivalent in quality to a seedling

Objectives

To develop protocols for operational production of elite stock plants and cuttings of Cwr.

Procedure

Stock plant production and rooted cutting production are two separate but related phases of vegetative propagation. Operational trials will be conducted in both areas. Most of the work will be carried out at Handy Nursery in Duncan.

A) Stock Plant Trials

Juvenile Seedling Stock Plants

Stock plant production will focus on techniques to maximize the number of quality cuttings produced. In previous work with other coastal species, production of the stock plants was the most problematic aspect of vegetative propagation (M. Wilson, FLNR Working Paper, in press). For western redcedar, elite seed for stock plants has been provided by Sunlands Ltd. One- and two-year-old stock plants exist at Handy Nursery and a new crop of stock plants will be sown in January 2014. The experimental design will include two photo periods, two N fertilization levels, two stock types and two pruning regimes ($2 \times 2 \times 2 \times 2 = 16$ treatment combinations). Each treatment will include a mix of 10 genotypes in equal proportions (genotypes are not a treatment, but genetic identities will be maintained). Each treatment combination will be tested with 3 reps of one stock plant per genotype per treatment for a total of $2 \times 2 \times 2 \times 2 \times 3 \times 10 = 480$ donor stock plants. Plants will be randomly allocated within reps, and reps kept on separate benches within the same greenhouse.

Activities

- pot/transplant new stock plants - 1st Quarter
- grow stock plants under contrasting cultural regimes - 1st, 2nd, 3rd Quarters
 - one pruning (at potting) vs. regular monthly prunings
- evaluate number of cuttings produced per treatment and stock plant age - 4th Quarter

B) Rooted cutting trials

Cultural trials with cuttings from juvenile seedling stock plants

Activities:

- 5 cuttings will be taken from each donor plant in January of 2016 ($5 \times 480 = 2400$ cuttings) and set using standard procedures developed at the Cowichan Lake Research Station.

Operational Tree Improvement Program

- Stock plant identities for each cutting will be maintained.
- Replications of stock plants from part A of this study will be maintained. The 5 cuttings from each stock plant will be set in a single row in 4-11 styroblocks. Stock plants will be randomly allocated to rows. This will result in 480 stock plants x 5 cuttings = 2400 cuttings set.
 - Rooting and stock quality of cuttings set will be assessed in January – 4th Quarter. Root length, symmetry and number will be measured.
 - 960 cuttings will be lifted in February 2017 (2 per donor plant) and outplanted to a trial site near Duncan. Survival and height growth will be assessed annually.

Data analysis

- Data will be analyzed using ANOVA to determine the primary effects on donor plant cutting production, on rooting success, and on field growth (Show the ANOVA model in actual proposals)

Location

Handy Nursery, Duncan, BC

Output and Deliverables

A report will be prepared following donor plant production assessments, rooting assessments, and each year of field growth assessment, and distributed to the tree improvement and forest nursery communities.

1. Production of 1000 elite cuttings for a trial site and field demonstration.
2. Production of 800 elite stock plants for use in operational cutting production, if needed.

Who will benefit from this work?

- Western redcedar growers and licensee holders in the Maritime Low SPU
- Support for Forest Genetics Council objectives
- FLNR cedar breeding program

Project Team

Marilyn Wilson
5900 Dumont Drive
Duncan, BC V9L 1L7
Telephone: (250) 748-7530

John Robertson
BC Ministry of Forests, Lands and Natural Resource Operations
Cowichan Lake Research Station
P.O. Box 335
Mesachie Lake, BC V0R 2N0
Tel. (250) 749-6811

Signature Block:

Name (authorization for application): **M. Wilson**

Signature: _____

Operational Tree Improvement Program

OTIP budget spreadsheet for TECHNICAL SUPPORT projects (Page 1/1) (go to the other tabs for operational orchard work)

Project title Development of propagation methods for western redcedar	
Project leader Marilyn Wilson	SPU # 2 Species Cw Zone M Elev. 1-700m
Instructions: - Enter information only in green cells - Not all rows need to be completed - Provide a breakdown of activities in each project category if it will help the review committee better understand your project	Information: - Totals and \$/KPI calculate automatically. You can't enter data in protected non-coloured cells. - If more information is needed, put it in the comments section at the bottom and refer to the category name and activity description in the budget table.

Project category						Costs (\$)							
#	Name	Activity description (break down as needed)	description (KPI) add more KPI if needed	Cost Qtr.	# KPI	Salary	Equip.	Travel	Materials & supplies	Other	Admin.	Total	\$ per KPI
350	Technical support	Stock plant handling	Number of donor plants managed	1	480	2,000.00			600.00		130.00	2,730.00	5.42
		Cutting harvest and setting	Nimber of cuttings	4	240	1,800.00			200.00		100.00	2,100.00	8.33
		Analysis and report prep	report	4	1	3,600.00		1,000.00		450.00	252.50	5,302.50	5,050.00
Total costs													
						7,400.00	0.00	1,000.00	800.00	450.00	482.50	10,132.50	
TOTAL PROJECT COST											\$	10,132.50	

Loaded hourly rates

Worker type	Rate/hr
Labour	\$22.50
Professional	\$46.00

Cost by Quarter

Q1 (April - June)	\$2,730.00
Q2 (July - Sept.)	
Q3 (Oct. - Dec.)	
Q4 (Jan. - March)	\$7,402.50

Comments section

Category	Activity description	Comment
350	Travel	Result presentation to users. Two trips to CTAC and species committee meetings. One trip to FNABC meeting.

Appendix C: Supplemental mass pollination use and funding guidelines

Introduction:

Table 6 sets out circumstances when SMP may be supported through OTIP funding. Review committees may allow SMP support for circumstances not shown below if compelling arguments are made. Also, review committees may disallow support for situations shown below if other factors mitigate against the work (i.e. if there is already a large supply of high-gain seed).

Table 6. Recommendations for the use and funding of supplemental mass pollination

Orchard Activity	Criteria	Qualifiers
1. Seed Production	<ul style="list-style-type: none"> Inadequate orchard pollen cloud (i.e., young orchard and in some circumstances pollination of early or late clones). Orchards with an adequate pollen supply will not normally be considered for SMP. 	✓
2. Reduce Selfing	<ul style="list-style-type: none"> High (>30%) selfing rates expected due to few in-orchard clones producing pollen 	✓
3. Lift in Gain	<ul style="list-style-type: none"> Orchard pollen has at least 10% greater GW than the orchard average GW 	go to decision tree

* All pollen lots used within an SMP mix must be tested for viability prior to application. Only viable lots should be used.