

Fdc program update



Jon Degner

Coastal tree breeder

CTAC Meeting

The Internet

2 April, 2020

Fdc program update

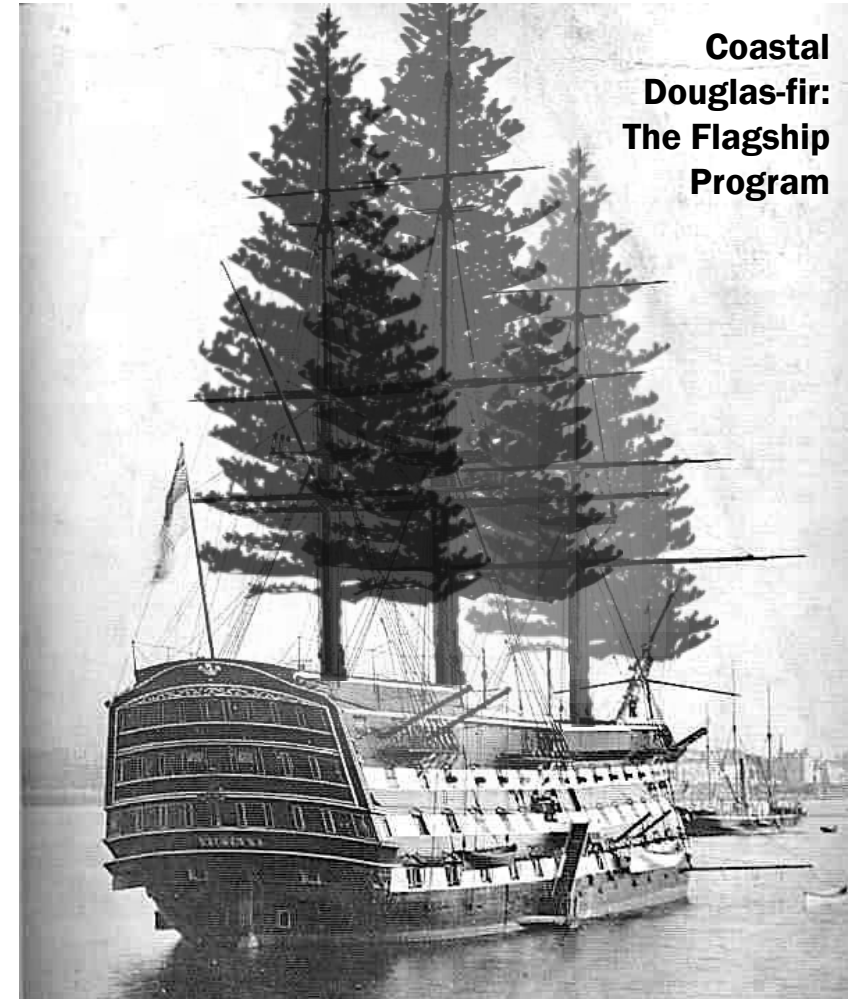


FY 2020

- Budget
- Activities

FY 2021

- Proposed activities
- Proposed budget

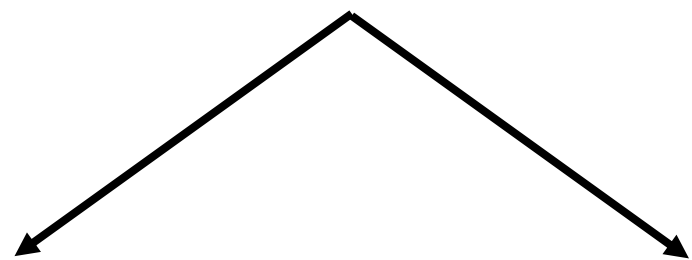


2019-2020 Budget



FGC recommended budget

\$170,000



Forest Health

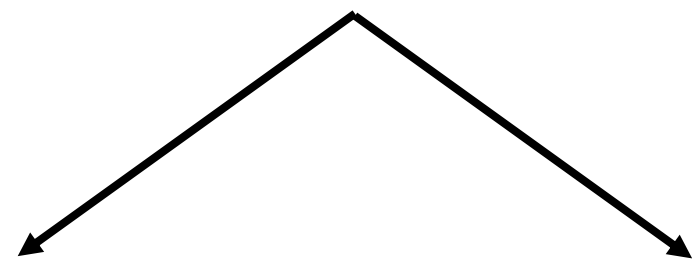
\$71,500

Value

\$98,500

Total expenditure

\$195,500



Forest Health

\$91,900

Value

\$103,600



2019-2020 Budget



Activity/expense	Forest health	Timber value
Swiss needle cast		
- Sampling/assessment	\$44,000	-
- Contribution to Uvic (CoAdapTree)	\$10,000	-
Wood quality/DNA sampling	\$8,000	\$24,000
Site maintenance		
- Fence removals	\$12,000	\$12,000
- Brushing/pruning	\$7,400	\$7,400
Selection age measurements	-	\$30,700
Staffing		
- Nursery workers/technician	\$5,000	\$20,000
Travel	\$2,500	\$7,500
Nursery/breeding/field supplies	\$3,000	\$2,000
Subtotal	\$91,900	\$103,600
Grand total		\$195,500

2019-2020 Major Activities



Trial establishment

Fdc Gen. 3, Series 1

- 4 sites
- ~2500 trees ea.



2019-2020 Major Activities



Validating CBST proposals

- Testing coastal and coastal-interior hybrids in the interior (ICHdw4/mw5)
- Observing coastal A-class lots planted in the subaritime (CWHds1/ms1)
- Reviewing new CBST revisions



2019-2020 Major Activities



Site maintenance

Fdc Gen. 2, Series 4

- Brushing + pruning
- Fence removal on one site + 2 older sites



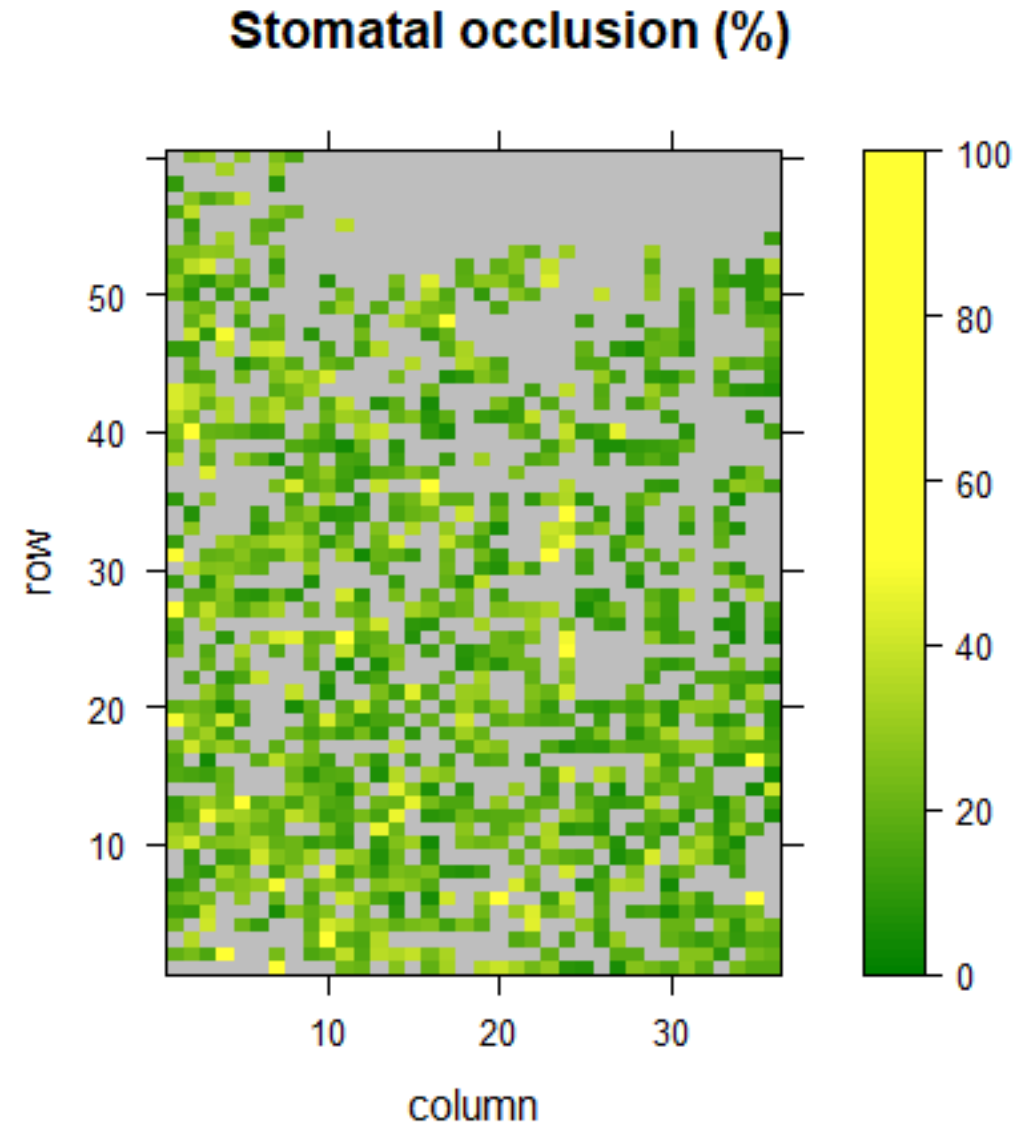
2019-2020 Major Activities



Swiss needle cast assessment

Fdc Gen. 2, Series 2

- Multi-level assessment of ~1000 trees at one GCA site



2019-2020 Major Activities



Wood quality/DNA sampling

Fdc Gen. 2, Series 1

- Two GCA sites; ~1000 trees each
- Two methods of acoustic velocity estimation
- Contributing to existing wood density/drought resistance data collected 2018
- DNA sampling for genomic project

2019-2020 Major Activities



New volume BVs / selections

Fdc Gen. 2, Series 4

- Four full-sib sites
- 61 new parental BVs
 - Mean BV = 10.6
 - Mean accuracy = 0.88
- 50 forward selections
 - Mean BV = 23.0
 - Mean accuracy = 0.70

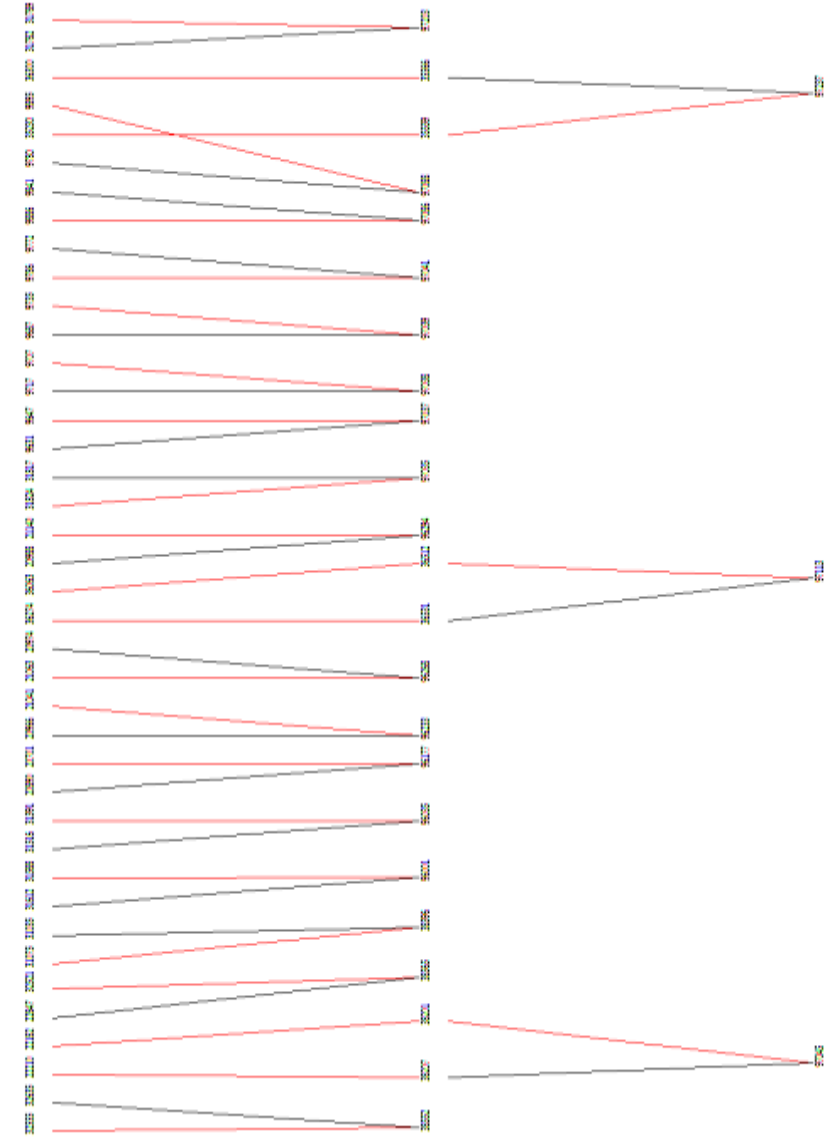


2019-2020 Major Activities



Material transfer with WAGTIC

- Received 20 unrelated crosses
 - 17 F_1
 - 3 F_2
- Will be tested in Gen. 3, Series 2



2019-2020 Major Activities



Publications

Benowicz, A., Stoehr, M., Hamann, A., Yanchuk, A. 2020. Estimation of the F2 generation segregation variance and relationships among growth, frost damage and bud break in coastal Douglas-fir (*Pseudotsuga menziesii* (Mirb.) Franco) wide-crosses. *Ann. For. Sci.* 77:28. Doi.org 10.1007/s13595-20-0925-9.

du Toit, F., Coops, N.C., Tompalski, P., Goodbody, T. R.H., , Y.A., Stoehr, M., Turner, D., Lucieer, A. 2020. Characterizing variations in growth characteristics between Douglas-fir with different genetic gain levels using airborne laser scanning. *Trees* (2020) doi:10.1007/s00468-019-01946-y

Isaac-Renton, M., Stoehr, M., Bealle Statland, C., Woods, J. 2020. Tree breeding and silviculture: Douglas-fir volume gains with minimal wood quality loss under variable planting densities. *For. Ecol. Mgt.* (accepted).

2020-2021 Proposed Activities



Continuing Swiss needle cast assessments

- Repeat 2019 assessment at another site (same series)
- Allows us to estimate G x E of resistance/tolerance and doubles sample size for parental BVs (higher BV accuracy)
- Data will be analysed jointly and published in a peer-reviewed journal
- Ongoing contract work with Canadian BioAct Services Ltd.
- Contributing to proposed GenomeBC GeneSolve project (w/ NRCan PFC)

Total request: \$57,500

2020-2021 Proposed Activities



Gen. 2, Series 4 Wood Quality

- Wood density estimates from 4 sites, to obtain wood quality BVs for parents and new selections

Total request: \$35,000

2020-2021 Proposed Activities



Submaritime/High elevation Gen. 2, Series 1

- 72 full-sib families and 19 OP families sown and germinating
- Need to select 5 sites and prepare sites for planting
- Sites will be planted FY22

Total request: \$10,000

2020-2021 Proposed Activities



Contribution to proposed GenomeBC GAPP project (with UBC)

- Determining optimal genotyping strategy for coastal and interior Douglas-fir
- Testing/comparing existing genotyping arrays
- Genotyping several trees in breeding population (parents and offspring)
- Using genomic selection to make early selections in Gen. 3, Series 1
- GenomeBC will match contributions

Total request: \$70,000

2020-2021 Proposed Budget



Activity/expense	Forest health	Timber value
Swiss needle cast		
- Sampling/assessment	\$47,500	-
- Contribution to GenomeBC GeneSolve project (proposed)	\$10,000	-
Wood quality	-	\$35,000
Subm./High elev. site prep	\$5,000	\$5,000
Contribution to GenomeBC GAPP project (proposed)	-	\$70,000
Gen. 3 Series 1 site maintenance	\$5,000	\$5,000
Staffing		
- Nursery workers/progeny growing	\$12,500	\$12,500
- Auxiliary field technician	\$15,000	\$5,000
Travel	\$5,000	\$5,000
Nursery/breeding/field supplies	\$3,000	\$3,000
Subtotal	\$103,000	\$140,500
Grand total		\$243,500