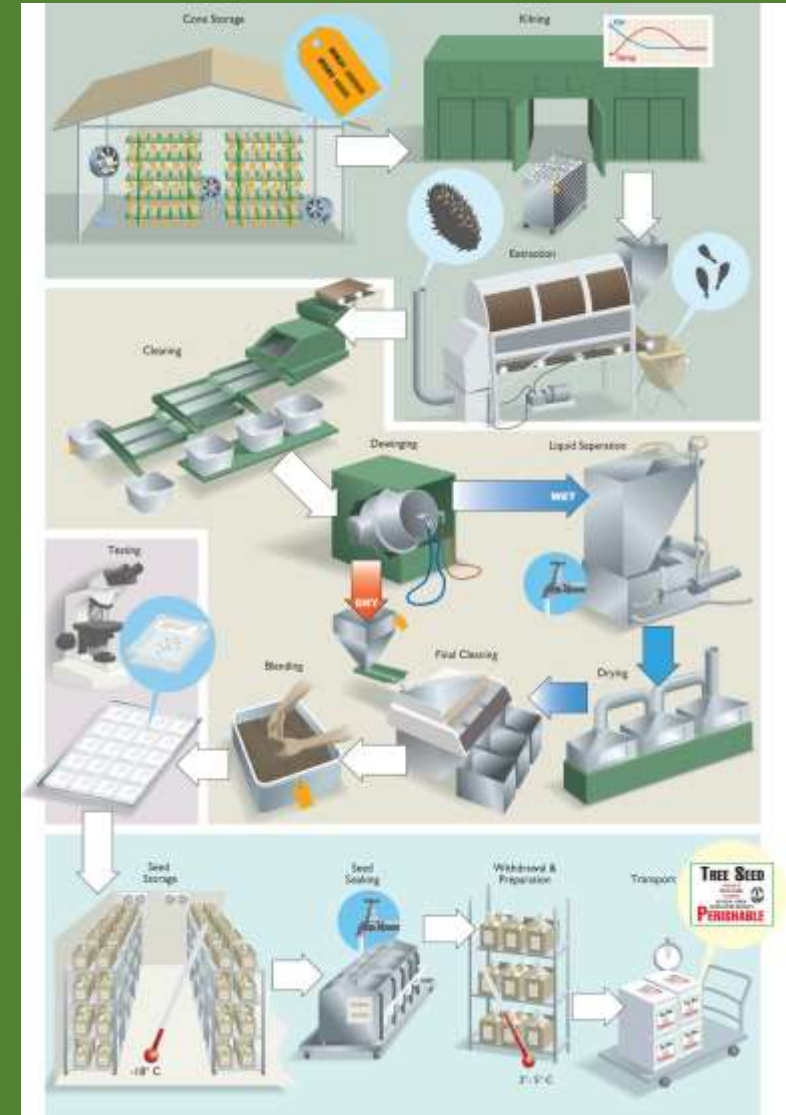


Tree Seed Centre Update



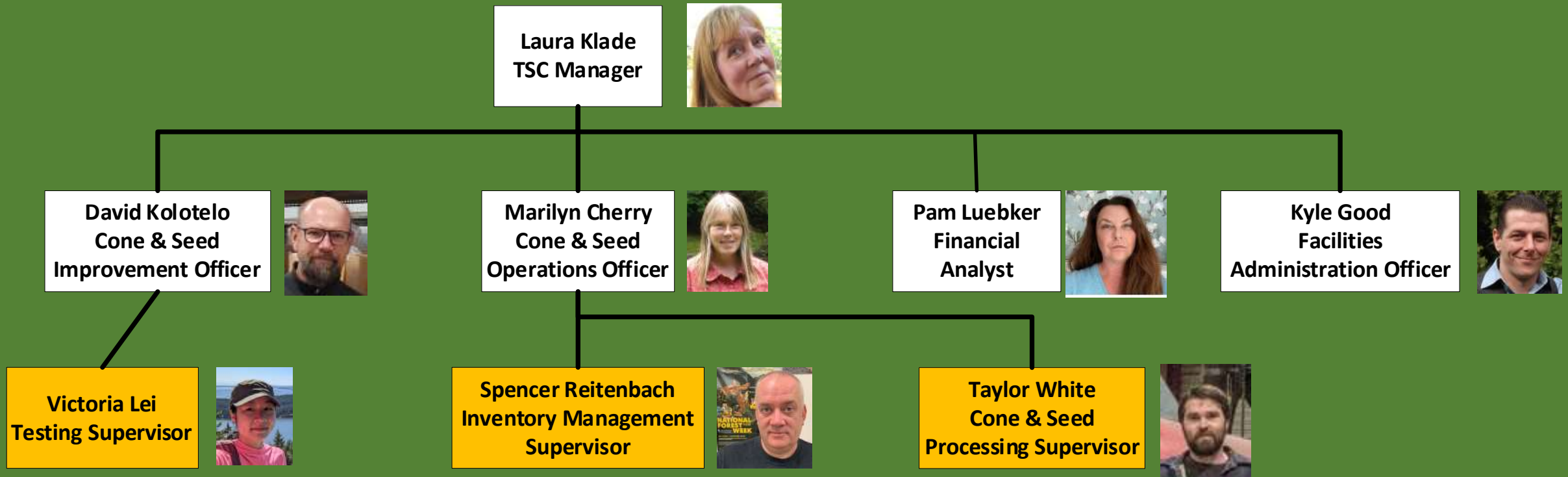
January 2024 ITAC Meeting
Dave Kolotelo



Michael Postma Send Off



Tree Seed Centre and its Services



- Provincial Tree Seed Centre since *1956; from 1986 in Surrey*
- 12 regular full-time staff members / 4-6 auxiliary employees
- *Transition time – 4 Temporary Appointments; 2 retired cone heads returned*
- **“Excellence in Cone and Seed Services”**
- Continuous improvement mentality

CAPITAL Freezer/Cooler Project

- Replace/duplicate existing freezer and cooler spaces
- Refurbishment not a sensible option (RISK to seed)



SEPT 2023



OCT 2023



JAN 2024





Other Facilities Activities

- Chuck Woodward back as auxiliary = original conehead (1979)
- A new electrical room to support new cooler/freezer
- New freezer/cooler project includes a new backup generator
- **Biannual high bay dust cleaning**
 - Equivalent to sawmill (fire marshall)
 - No more than a dimes thickness of dust
- New air handling unit for germinator room
- Additional automation to BEVCO cone handling line
- Kiln servicing and potential replacement of combustion box
- Forklift repairs / **fire protection system pre-action valve - \$27K – fire watch**
- Contract Management (electrical, HVAC; fire protection, security, pest control, cleaning, landscaping ...)

Table 2: Summary of explosibility screening test results.

Sample	Moisture content (wt. %)	Explosible
High Dust	4.6	Yes
Low Dust	4.4	Yes



Finance & Administration



- Produces invoicing for external clients and journal voucher recoveries for internal (FIRM, BCTS, FFT/FRP, Provincial Operations and the LBIS program clients for seed sales and TSC services
- Invoicing is generally done quarterly (July, October, January and March)
- Most invoicing works efficiently through SPAR if a client is setup and that is a relatively easy process
- Manual processes are available as a one-off, but more painful
- The process is still somewhat primitive and invoices are mailed – *change is more likely to be externally driven* 😞

Cone and Seed Processing (CSP)

(Cost Recovery Service – fee review in progress)

- Very small cone crop in 2023 vs. 2022
- Pre-conditioning space not an issue 😊
- Staffing levels were also reduced
- First shipment received Sept 19
- Priority Processing Requests (10) completed by mid-November
- A-Class PLI seed yields (kg/hl) generally low (12 seedlots)

	2022	2023
HL Cones	8300	1030
#seedlots	120	26
Kg of seed	5800	145 to 190
Potential Trees	410 M	

PLI 5-Year Mean	PLI 2023 MEAN	PLI 2023 RANGE
0.270	0.127	0.065 to 0.333

- Some family lot processing performed
- Spring 2023 – 8 black cottonwood seedlots
210 g = 145K trees (SPG =2200) **New for us**
- **Off season – communication is key/ product sensitivity**





Better
Times =
2022 crop

This is what
a Million \$
worth of
FDI seed
looks like !

Inventory Management

Seedlot registration / seed storage/
withdrawal and stratification\$ /pelletting \$
(Cost Recovery Service – fee review in progress)

- 2023 Steady seedling demand= 299 M
- 2024 ? Currently 195M, still time ???
- Timely registration information input (A & B)
- Timely Seedling request (SRQ) grams and sowing date updates – *highly dynamic*

- Move to new freezers also involves an inventory review
 - *Do you have poor seedlots you'll never use? CBST*
 - *Do you have all your seed Reserved, where it likely will not be used*
 - *Can keep a portion of a seedlot*
 - *Can donate part to provincial seed bank or National TSC bank if quality is still 'reasonable'*



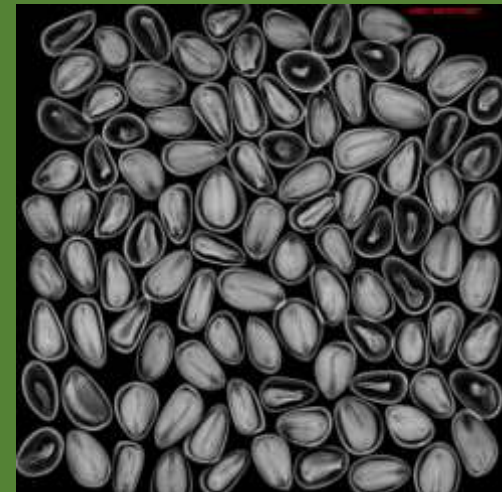
Seed Use Efficiency

- Sowing guidelines area starting point and gram reductions are encouraged
- Difference between Requested seedlings based on original grams and Calculated seedlings based on gram reductions provides an assessment of seed use efficiency
- Nurseries recognized for average gram reductions of 30% (GOLD); >25% (Silver); >20% (Bronze)
- For 2023 average gram reductions were 15.2%
2022=14.7%; 2021=14.2%
- In 2023 some nurseries who have historically not reduced grams did
- Emphasis on those not on the list !!!

2023	2022	2021
	PRT Juniper Beach (31.6%)	PRT Juniper Beach (31.6%)
PRT Coldstream (25.7%)	PRT Coldstream (24.1%)	MountainView (29.3%)
	Industrial Forest Service (23.8%)	Industrial Forest Service (25.1%)
MountainView (23.9%)	PRT Armstrong (21.1%)	PRT Coldstream (21.8%)
PRT Campbell River (22.9%)		
PRT Juniper Beach (21.9%)		
Industrial Forest Service (21.7%)		
Tolko (20.5%)		
PRT Armstrong (20.2%)		

Testing

- MAT Leave Testing Technician – Eric Ken ↗
- Testing continues year round
- $\approx 75\%$ Standard Testing : 25% Quality Assurance Testing
- QA Test examples – cone MC; unkilned seed MC; PAT; SRQ-QA
- Retesting Goal – results available for SRQ
 - Deep Dormancy (long stratification) species in spring
 - Low dormancy species in late summer/fall
 - Daily reports for SRQ needing updates - what seedlots will be used?
- Water Activity used in addition to destructive tests for determining if seedlots are dry enough for freezer storage
- X-ray analysis for determining seedlot viability estimates for PA



Cone and Seed Improvement



Genetic Conservation

- Seed Bank of representative samples of “non-commercial” species
- Gaps in filling species* BEC zone matrix
- Goal – 3 populations of 20 trees (50 m apart) with 2000 viable seeds per tree
- 2023 was generally poor – 75 families from 6 locations/species
- Management of Whitebark & Limber pine seed deposits and withdrawals



• Research and Extension

- Western larch hydrogen peroxide test type on SPAR (H10)
- Extended stratification in SX (6 vs. 3 weeks)
- Seed Pathology
- 2024 emphasis on knowledge transfer – DK exit strategy



Tree Seed Working Group



Dave Kolotelo – Chair
Melissa Spearing - Editor

OBJECTIVES: To promote tree seed science and technology through:

1. Seed research from bud initiation to seed utilization
2. Identification of seed problems relating to tree improvement and forest management
3. The exchange of information on seed related problems
4. Advising on implementation practices



2023 Tree Seed Workshop

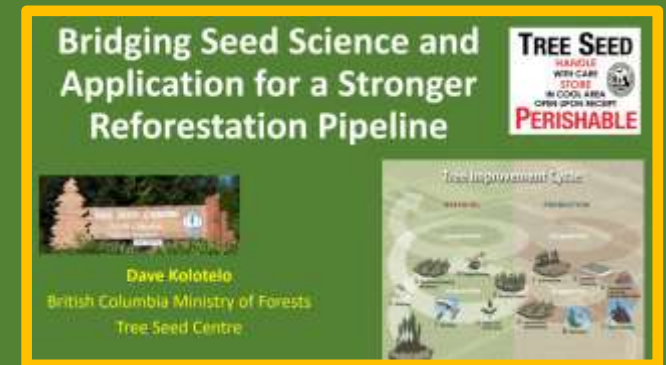


Reproductive Biology and Seed Orchard Practices	
Reproduction in Balsam Fir (recorded presentation)	Dr. Graham Powell, University of New Brunswick
Gametic Selection During Reproduction: Whatever Could Go Wrong?	Dr. Patrick von Aderkas, University of Victoria
Lodgepole Pine Seed Yields from Two Orchard Soil Types	Robert Taylor, Skimikin Seed Orchard, BC Ministry of Forests
Controlled Mass Pollination (CMP) in the Southeastern United States	Stephen Goodfellow, PRT Growing Services & IFCO Seedlings, Alabama
JDI's Controlled Mass Pollination with White Spruce	Courtney McDonald, Parkingdale Seed Orchard, JD Irving, New Brunswick
Seed Testing and Use	
Testing, Testing 1, 2, 3!	Victoria Lei, BC Tree Seed Centre
Seed Research Interpretations & Pitfalls	Dave Kolotelo, BC Tree Seed Centre
Genetic Conservation and Restoration	
Update on Genetic Conservation of Trees in BC	Dr. Tongli Wang, University of British Columbia
Whitebark Pine: Initiatives to Restore an Endangered Species	Francis Iredale, BC Ministry of Land, Water and Resource Stewardship, and Stephen Joyce, Whitebark Pine Ecosystem Foundation of Canada
Genetic Conservation Projects in Southern Ontario: Challenges and Opportunities	Kristen Sandvall, Forest Gene Conservation Association of Ontario
Towards an Ontario Tree Seed Genetics Archive	Dr. Lahcen Benomar, Ontario Ministry of Natural Resources & Forestry
Low Tech Tools and Techniques	
Seed Orchard Monitoring: Hot Tips & New Tricks	Geoff Bradley, Kalamalka Research Station, BC Ministry of Forests
Low-Tech Tools & Demonstrations	Victoria Lei and Melissa Spearing

Tree Seed Summit 2023



- **Work through challenges of native seed procurement**
- MAST Reforestation & Society for Ecological Restoration
- Large dependence on wild cone crops
- Complications due to land authority
 - State
 - Federal
 - USDA Forrest Service
 - Bureau of Land Management
 - “Tribal”
 - Private



- <https://sites.google.com/droneseed.co/tss2023/materials>