

HYBRID LARCH: A PROVEN WINNER THAT CAN GET EVEN BETTER

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Long History in New England

- Plantations of exotic larch throughout New England established over 7 decades.
- Native Eastern larch, Japanese, European and J x E hybrids.



Jericho Research Forest, VT

1941 Exotic Larch Plantations



1961

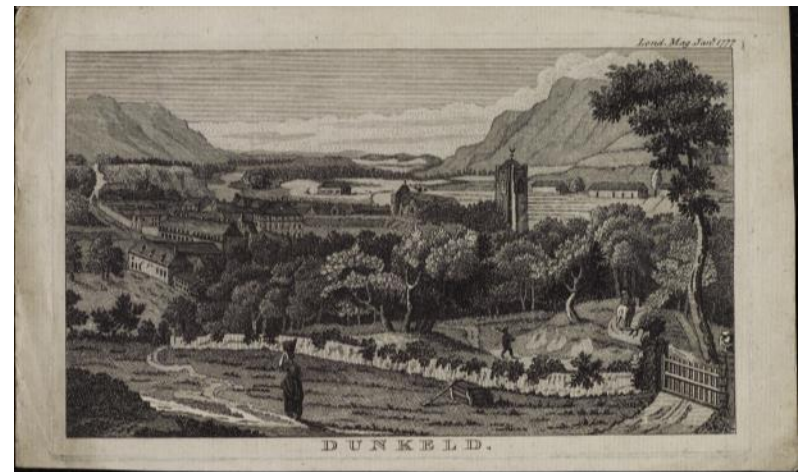


2016

Dunkeld Larch

Hybrid Larch (*L. x marschlinsii* Coaz)

- Japanese larch (*Larix kaempferi*)
- European larch (*Larix decidua*)
- Documented at the Dunkeld Estate in Perthshire, Scotland in 1916/17
- ... and earlier in Estonia



Hybrid Larch in Maine



2 year-old hybrid
larch: Etna, ME



26 year-old hybrid
larch: Skowhegan, ME

Operational Hybrid Larch Plantations in Maine

- Hybrid seed was produced in a German seed orchard where a single cloned European parent (of German origin) was supposedly mass pollinated with a mix of pollen collected from two Japanese parents from a local provenance trial (Langer and Schneck 1998).



1992 Hybrid Larch Trial

Johnson Mountain ME

- Test performance & stability
- European (E) (5 entries)
- Japanese (J) (6 entries)
- Tamarack (T) (6 entries)
- ExJ, JxE, ExT, TxE, JxT, TxJ, etc.
- 51 crosses, planted in rows/columns
- 10 replicated blocks of 3-tree row plots

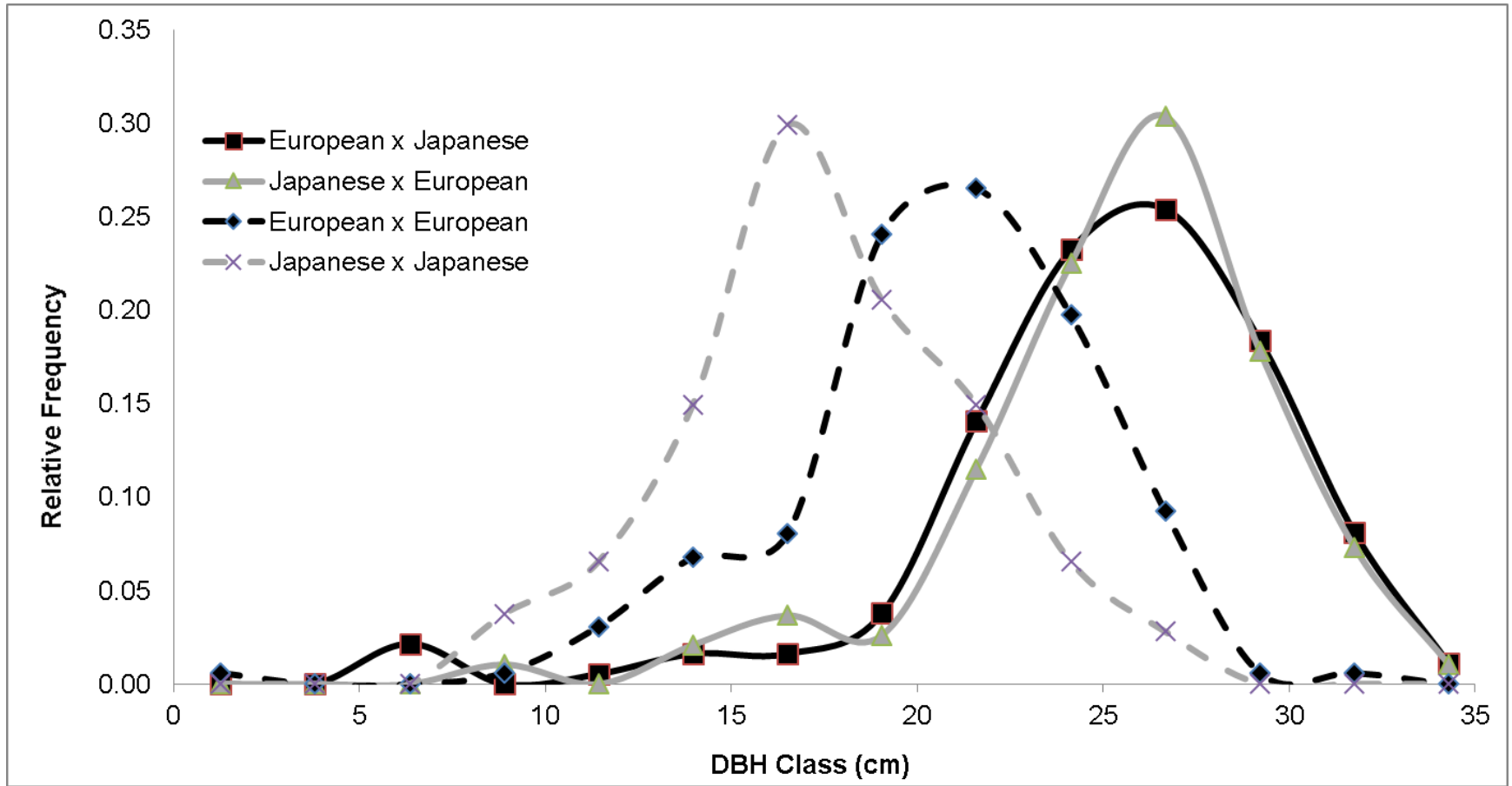


Early Results

Family group	% survival	% trees w/defect	Seeds/cone	% germination
JE	73	5	87	87
EJ	77	5	91	91
EE	77	15	96	96
JJ	51	17	86	86
TT	44	54	22	22
TJ	55	33	22	22
TE	61	11	21	21



Age 22 Diameter Distributions



Age 22 Results

Hybrid Group	Survival (%)		Height (m)		DBH (cm)		Stem Volume (dm ³)	
	<i>LS Mean</i>	<i>SE</i>	<i>LS Mean</i>	<i>SE</i>	<i>LS Mean</i>	<i>SE</i>	<i>LS Mean</i>	<i>SE</i>
ET	72 ab	8.7	20.2 a	0.6	25.1 ab	0.9	435.8 (1-1) a	27.9
JE	70 ab	4.1	19.2 a	0.3	25.4 a	0.4	429.8 (2-4) a	13.1
EJ	76 a	4.2	19.2 a	0.3	25.1 a	0.4	428.7 (3-5) a	13.2
TE	60 ab	4.5	18.3 ab	0.4	22.2 bc	0.5	322.2 (4-3) b	15.3
EE	76 a	4.3	17.7 b	0.3	20.7 c	0.5	273.5 (5-7) c	13.7
TJ	51 b	6.7	16.4 bc	0.5	19.9 cd	0.8	263.6 (6-2) cd	25.2
XLD-4-89	67 ab	8.6	17 bc	0.6	20.4 cd	1.0	248.3 (7-9) cd	28.4
XLD-LL-7-89	61 ab	9.1	16.4 bc	0.7	18.6 cd	1.1	231.3 (8-10) cd	31.2
JJ	58 b	4.5	15.8 c	0.4	17.7 d	0.5	182.9 (9-8) d	15.4
TT	48 b	4.0	13.1 d	0.4	14.2 e	0.5	106.2 (10-6) e	14.5

Table 1. – Least Square Means (LSMean) for percent survival, total height, DBH, and individual tree stem volume by hybrid group at age 22. Commercial check means (XLD-4-89 & XLD-LL-7-89) are listed for comparison. Values within a column followed by the same letter are not significantly different at alpha=0.05 using Bonferroni's protected LSD. Numbers in parentheses in the stem volume column represent age 22 rank versus age 5 rank.

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**Age 27 at
Howland, ME**