Table S1. Results of a Wald test according to a type 3 analysis testing the effects of populations (P), days of winter warm spell (D), weeks of cold stratification (W), and their interactions on germination energy (GE), germination capacity (GC) and final germination capacity (FGC). DF: degrees of freedom; P: probability), bold text – significant differences at p≤0.05

		GE		GC		FGC	
Source of variation	DF	Chi-square	p	Chi-square	p	Chi-square	p
Population (P)	3	117.1	**<0.001**	171.1	**<0.001**	194.3	**<0.001**
Days of winter warm spell (D)	2	10.6	**0.005**	8.4	**0.015**	12.3	**0.002**
Stratification duration (W)	6	190.2	**<0.001**	25.8	**<0.001**	12.2	0.058
P×D	6	5.1	0.528	10.5	0.105	10.1	0.119
P×W	18	30.9	**0.030**	42.1	**0.001**	22.5	0.211
D×W	12	102.0	**<0.001**	55.0	**<0.001**	40.4	**<0.001**
P×D×W	36	66.0	**0.002**	79.7	**<0.001**	57.9	**0.012**

Table S2. Results of a Wald test according to a type 3 analysis testing the effects of current and future winter warm spells during cold stratification on germination energy (GE), germination capacity (GC) and final germination capacity (FGC). Analyses were done for each $D_j \times W_k$ combination. DF: degrees of freedom; P: probability), bold text – significant differences at p≤0.05

		GE		GC		FGC	
week(s) when the warm spell occurred	DF	Chi-square	p	Chi-square	p	Chi-square	p
3	2	50.82	**<0.001**	0.85	0.654	2.82	0.244
6	2	17.76	**<0.001**	0.15	0.928	1.23	0.541
9	2	32.52	**<0.001**	4.06	0.131	4.47	0.107
3/6	2	62.28	**<0.001**	1.05	0.592	1.12	0.571
3/9	2	18.33	**<0.001**	0.04	0.982	5.36	0.069
6/9	2	16.24	**<0.001**	7.08	**0.029**	0.52	0.772
3/6/9	2	5.66	0.059	6.21	**0.045**	2.81	0.245

Intra-population differences (P×W, D×W)

Germination energy (GE)

In population JAM, the highest GE achieved seeds in which cold stratification was interrupted after 3 and 6 weeks (41%). Interruption of cold stratification three times during the entire 12-week period (after 3, 6, and 9 weeks) caused a significant reduction of GE in seeds from JAM to 14%. When cold stratification was interrupted for 1 day after 3 weeks, it caused significantly higher GE (48%) compared to 1 day warm spell after 6 weeks or after 3 and 6 and 9 weeks (18% and 11%, respectively) – Table S2. Three days of warm spells significantly reduced GE of seeds which cold stratification was interrupted after 3 and 6 and 9 weeks (14%) compared to the most others variants. Winter warming lasting 5 days significantly decreased GE of seeds which cold stratification was interrupted after 9 weeks (9%) or after 3 and 6 and 9 weeks (16%). Moreover, we also found significantly differences in GE when we determined influence of duration of warm spells occurred in the various weeks of cold stratification. When cold stratification was interrupted after 3 weeks or after 9 weeks, significantly higher GE was observed in seeds subjected to only 1 day of warm spell compared to them lasting 5 days (Table S2). The opposite situation occurred when winter warming occurred after 6 weeks of cold stratification. In this case significantly higher GE was observed in seeds subject to warm spells lasting 5 days rather 1 day (41% and 18%, respectively).

In population LEB we did not observe any differences between weeks when cold stratification was interrupted, however the greatest GE was found when warm spells occurred after 3 or 3 and 6 weeks of cold stratification (both 26%).

In population CZA the highest GE was observed when warm spells occurred after 3 and 6 weeks (27%). Occurrence warm spells after 3 and 6 and 9 weeks of cold stratification, significantly reduced GE seeds from population CZA (only 8%). When cold stratification was interrupted for 1 day after 3 weeks, it caused significantly higher GE (28%) compared to 1 day warm spell after 6 and 9 weeks (11%). Three days of warm spells significantly reduced GE of seeds which cold stratification was interrupted after 3 and 6 and 9 weeks (3%) compared to the most others variants. Winter warming lasting 5 days significantly decreased GE of seeds from CZA population which cold stratification was interrupted after 3 and 6 and 9 weeks (7%). Moreover, we also found significantly differences in GE when we determined influence of duration of warm spells occurred in the various weeks of cold stratification. When cold stratification was interrupted after 3 and 6 weeks, significantly higher GE was observed in seeds subjected to 3 day of warm spell compared to them lasting 1 days (38% and 20%, respectively).

In population CHO we found that the highest GE occurred when cold stratification was interrupted after 3 and 6 weeks (39%). Also in case of seeds from population CHO, interrupting cold stratification after 3 and 6 and 9 week resulted in significantly decrease of GE (16%) – Table S2. When cold stratification was interrupted for 1 day after 3 and 6 weeks, it caused significantly higher GE (39%) compared to 1 day warm spell after 6 weeks or after 3 and 9 weeks (both 18%). Three days of warm spells significantly increased GE of seeds from CHO when cold stratification was interrupted after 6 or 9 or 3 and 6 weeks (40%, 35% and 43%, respectively) compared to the seeds which cold stratification was interrupted after 3 and 9 weeks or after 3 and 6 and 9 weeks (16% and 12%, respectively). Winter warming lasting 5 days significantly decreased GE of seeds from CHO when cold stratification was interrupted after 9 weeks (12%). Moreover, we also found significantly differences in GE when we determined influence of duration of warm spells occurred in the various weeks of cold stratification. When cold stratification was interrupted after 6 or 9 weeks, significantly higher GE was observed in seeds subjected to 3 days of warm spell compared to them lasting 1 or 5 days (Table S2).

Germination capacity (GC)

The interaction P×W was significant only for the JAM and CHO populations. In JAM, a warm spell after 6 and 9 weeks of cold stratification caused a significant decrease in GC (56%) compared to seeds treated with a warm spell at other times of cold stratification (Table S2). In CHO population, GC of seeds treated with a warm spell after 3 and 6 and 9 weeks of cold stratification was significantly lower (49%) compared to seeds treated with a warm spell after 6 and 9 weeks of cold stratification (67%).

Considering D×W interaction, we found that when cold stratification seeds from JAM was interrupted for 1 day after 6 and 9 weeks, it caused significantly higher GC (85%) compared to 1 day warm spell occurred after 3 and 6 and 9 weeks (47%) – Table S2. Three days of warm spells did not influence significantly on GC. Winter warming lasting 5 days significantly decreased GC of seeds only when cold stratification was interrupted after 6 and 9 weeks (24%). Moreover, we also found significantly differences in GE when we determined influence of duration of warm spells occurred in the various weeks of cold stratification. When cold stratification was interrupted after 6 and 9 weeks, significantly higher GE was observed in seeds subjected to only 1 day of warm spell compared to them lasting 3 or 5 days (85%, 59% and 24%, respectively).

In population LEB we did not observe any differences between weeks when cold stratification was interrupted and duration of warm spells – Table S2.

In population CZA the highest GC was observed when warm spells occurred after 3 and 6 weeks (50%). When cold stratification was interrupted for 1 day we did not observe any significant differences between weeks when cold stratification was interrupted. Three days of warm spells significantly reduced GC of seeds which cold stratification was interrupted after 3 and 9 weeks (39%) compared to the seeds which cold stratification was interrupted after 3 and 6 weeks (62%). Winter warming lasting 5 days had no effect on GC seeds from CZA.

In population CHO we found that the significantly higher GC occurred when cold stratification was interrupted after 6 and 9 weeks (67%) compared to GC obtained by seeds subjected to interruption of cold stratification after 3 and 6 and 9 weeks (49%) - Table S2. Three days of warm spells significantly increased GC of seeds from CHO when cold stratification was interrupted after 3 and 6 weeks or 6 and 9 weeks (66% and 63%, respectively) compared to the seeds which cold stratification was interrupted after 3 and 6 and 9 weeks (35%). Winter warming lasting 5 days had no effect on GC seeds from CZA. Moreover, we also found significantly differences in GC when we determined influence of duration of warm spells occurred in the various weeks of cold stratification. When cold stratification was interrupted after 9 weeks, significantly higher GC was observed in seeds subjected to 1 day of warm spell (69%) compared to them lasting 5 days (42%).

Final germination capacity (FGC)

After 63 days of incubation, the interactions P×D and P×W were insignificant. Only D×W interaction was significant (Table S1), however it concerned solely population CZA. We found that seeds from these population had a significantly lower FGC when were subjected 5 days of warm spells after 9 weeks of cold stratification (85%) compared to seeds subjected 1 day of warm spell after 9 weeks (96%). We also found that 5 days of warming occurred after 6 weeks of cold stratification (82%) significantly reduced FGC compared to 5 days of warm spell occurred after 3 and 6 and 9 weeks – 95% (Table S2).

Table S3. Germination energy (GE), germination capacity (GC), and final germination capacity (FGC) of Douglas-fir seeds from four populations (P). JAM - Jamy, LEB - Lębork, CZA - Czaplinek, CHO – Chojna; 1, 3, 5 – number of day(s) of winter warm spell (D); 3, 6…3/6/9 – the week(s) when the warm spell (W) occurred during cold stratification either singly (3, 6, 9) or multiply (3/6, 3/9, 6/9, 3/6/9). Superscript/subscript letters mean intra/inter-population comparisons. Means with the same lowercase letter within a row or means with the same uppercase letter within a column are not significantly different at p≤0.05.

P	W	GE [%]				GC [%]				FGC [%]			
		D				D				D			
		1	3	5	mean	1	3	5	mean	1	3	5	mean
JAM	3	48^{Aa}	41^{Aab}	28^{Ab}	39^{A}_{A}	64^{ABa}	58^{Aa}	63^{Aa}	62^{A}_{A}	97^{Aa}	96^{Aa}	94^{Aa}	96^{A}_{A}
	6	18^{Bb}	39^{Aa}	41^{Aa}	33^{AB}_{A}	67^{ABa}	66^{Aa}	69^{Aa}	67^{A}_{A}	98^{Aa}	97^{Aa}	98^{Aa}	98^{A}_{A}
	9	32^{ABa}	37^{Aa}	9^{Bb}	26^{BC}_{A}	72^{ABa}	58^{Aa}	60^{Aa}	63^{A}_{A}	98^{Aa}	96^{Aa}	97^{Aa}	97^{A}_{A}
	3/6	50^{Aa}	40^{Aa}	33^{Aa}	41^{A}_{A}	68^{ABa}	67^{Aa}	68^{Aa}	68^{A}_{A}	95^{Aa}	97^{Aa}	98^{Aa}	97^{A}_{A}
	3/9	32^{ABa}	25^{ABa}	32^{Aa}	30^{AB}_{A}	79^{Aa}	68^{Aa}	59^{Aa}	69^{A}_{A}	99^{Aa}	98^{Aa}	96^{Aa}	98^{A}_{A}
	6/9	34^{ABa}	36^{Aa}	24^{ABa}	31^{AB}_{A}	85^{Aa}	59^{Ab}	24^{Bc}	56^{B}_{B}	98^{Aa}	97^{Aa}	96^{Aa}	97^{A}_{A}
	3/6/9	11^{Ba}	14^{Ba}	16^{Ba}	14^{C}_{AB}	47^{Ba}	69^{Aa}	69^{Aa}	62^{A}_{A}	96^{Aa}	97^{Aa}	96^{Aa}	96^{A}_{A}
	mean	32^{a}_{A}	33^{a}_{A}	26^{a}_{A}		69^{a}_{A}	64^{a}_{A}	59^{a}_{A}		97^{a}_{A}	97^{a}_{A}	96^{a}_{A}	
LEB	3	25^{Aa}	26^{Aa}	26^{Aa}	26^{A}_{AB}	47^{Aa}	45^{Aa}	55^{Aa}	49^{A}_{A}	86^{Aa}	94^{Aa}	87^{Aa}	89^{A}_{A}
	6	14^{Aa}	26^{Aa}	17^{Aa}	19^{A}_{A}	41^{Aa}	54^{Aa}	49^{Aa}	48^{A}_{AB}	85^{Aa}	89^{Aa}	91^{Aa}	88^{A}_{A}
	9	21^{Aa}	20^{Aa}	13^{Aa}	18^{A}_{A}	52^{Aa}	41^{Aa}	45^{Aa}	46^{A}_{AB}	96^{Aa}	94^{Aa}	86^{Aa}	92^{A}_{A}
	3/6	27^{Aa}	34^{Aa}	16^{Aa}	26^{A}_{B}	54^{Aa}	59^{Aa}	41^{Aa}	51^{A}_{AB}	90^{Aa}	91^{Aa}	93^{Aa}	91^{A}_{A}
	3/9	14^{Aa}	16^{Aa}	24^{Aa}	18^{A}_{AB}	47^{Aa}	44^{Aa}	63^{Aa}	51^{A}_{AB}	93^{Aa}	90^{Aa}	86^{Aa}	90^{A}_{A}
	6/9	21^{Aa}	29^{Aa}	18^{Aa}	23^{A}_{AB}	53^{Aa}	54^{Aa}	46^{Aa}	51^{A}_{AB}	97^{Aa}	87^{Aa}	90^{Aa}	91^{A}_{A}
	3/6/9	14^{Aa}	10^{Aa}	14^{Aa}	13^{A}_{AB}	46^{Aa}	44^{Aa}	49^{Aa}	46^{A}_{AB}	92^{Aa}	88^{Aa}	96^{Aa}	92^{A}_{A}
	mean	19^{a}_{A}	23^{a}_{A}	18^{a}_{A}		49^{a}_{A}	49^{a}_{A}	50^{a}_{A}		91^{a}_{A}	90^{a}_{A}	90^{a}_{A}	
CZA	3	28^{Aa}	26^{Aa}	24^{Aa}	26^{AB}_{B}	51^{Aa}	45^{ABa}	44^{Aa}	47^{A}_{A}	88^{Aa}	90^{Aa}	90^{ABa}	89^{A}_{A}
	6	21^{ABa}	22^{Aa}	22^{ABa}	22^{AB}_{A}	41^{Aa}	47^{ABa}	44^{Aa}	44^{A}_{B}	92^{Aa}	85^{Aa}	82^{Ba}	86^{A}_{A}
	9	16^{ABa}	21^{Aa}	8^{ABa}	15^{B}_{A}	49^{Aa}	44^{ABa}	34^{Aa}	42^{A}_{B}	96^{Aa}	89^{Aab}	85^{ABb}	90^{A}_{A}
	3/6	20^{ABb}	38^{Aa}	24^{Aab}	27^{A}_{B}	41^{Aa}	62^{Aa}	48^{Aa}	50^{A}_{B}	92^{Aa}	88^{Aa}	89^{ABa}	90^{A}_{A}
	3/9	18^{ABa}	12^{ABa}	22^{ABa}	17^{B}_{B}	46^{Aa}	39^{Ba}	46^{Aa}	44^{A}_{B}	94^{Aa}	96^{Aa}	89^{ABa}	93^{A}_{A}
	6/9	11^{Ba}	21^{Aa}	12^{ABa}	15^{C}_{B}	47^{Aa}	42^{ABa}	39^{Aa}	43^{A}_{B}	95^{Aa}	87^{Aa}	94^{ABa}	92^{A}_{A}
	3/6/9	14^{ABa}	3^{Ba}	7^{Ba}	8^{C}_{B}	39^{Aa}	30^{ABa}	38^{Aa}	36^{A}_{B}	91^{Aa}	93^{Aa}	95^{Aa}	93^{A}_{A}
	mean	18^{a}_{A}	20^{a}_{A}	17^{a}_{A}		45^{a}_{A}	44^{a}_{A}	42^{a}_{A}		93^{a}_{A}	90^{a}_{A}	89^{a}_{A}	
CHO	3	34^{ABa}	27^{ABa}	28^{ABa}	30^{AB}_{AB}	56^{Aa}	52^{ABa}	55^{Aa}	54^{AB}_{A}	97^{Aa}	94^{Aa}	92^{Aa}	94^{A}_{A}
	6	18^{Bb}	40^{Aa}	28^{ABb}	29^{AB}_{A}	55^{Aa}	61^{ABa}	56^{Aa}	57^{AB}_{AB}	97^{Aa}	97^{Aa}	96^{Aa}	97^{A}_{A}
	9	22^{ABb}	35^{Aa}	12^{Bb}	23^{BC}_{A}	69^{Aa}	51^{ABab}	42^{Ab}	54^{AB}_{AB}	98^{Aa}	93^{Aa}	96^{Aa}	96^{A}_{A}
	3/6	39^{Aa}	43^{Aa}	35^{Aa}	39^{A}_{AB}	65^{Aa}	66^{Aa}	65^{Aa}	65^{AB}_{A}	95^{Aa}	94^{Aa}	96^{Aa}	95^{A}_{A}
	3/9	18^{Ba}	16^{Ba}	34^{Aa}	23^{BC}_{AB}	62^{Aa}	62^{ABa}	61^{Aa}	62^{AB}_{A}	98^{Aa}	96^{Aa}	96^{Aa}	97^{A}_{A}
	6/9	27^{ABa}	27^{ABa}	20^{ABa}	25^{BC}_{A}	74^{Aa}	63^{Aa}	65^{Aa}	67^{A}_{A}	98^{Aa}	93^{Aa}	98^{Aa}	96^{A}_{A}
	3/6/9	20^{ABa}	12^{Ba}	17^{ABa}	16^{C}_{A}	55^{Aa}	35^{Ba}	57^{Aa}	49^{B}_{AB}	98^{Aa}	94^{Aa}	96^{Aa}	96^{A}_{A}
	mean	25^{a}_{A}	29^{a}_{A}	25^{a}_{A}		62^{a}_{A}	56^{a}_{A}	57^{a}_{A}		97^{a}_{A}	94^{a}_{A}	96^{a}_{A}	

Inter-population differences (P×D×W)

Germination energy (GE)

GE differed significantly depending on the duration of warm spells, time of cold stratification, and seed origin (Figure S1-3). In other words, we compared how 1, 3, or 5 days of a warm spell that occurred during a specific time of cold stratification affected GE between populations. If a 1-day warm spell occurred after 3 weeks of cold stratification (Figure S1), the highest GE occurred in seeds from JAM (48%), which was significantly higher than the GE from CZA (28%). Populations were also significantly differentiated by winter warm spell lasting 1 day if it occurred after 9 weeks of cold stratification. Seeds from JAM germinated significantly higher than seeds from CZA (32% and 16%, respectively). Furthermore, an interruption of cold stratification twice, after 6 and 9 weeks, had a significant impact on GE. In this case, significantly higher GE occurred in seeds from JAM (34%) and CHO (27%) than from CZA (11%).

Winter warm spells that lasted 3 days significantly influenced GE if the interruption occurred after 6 weeks of cold stratification (Figure S2). In this case, the highest GE occurred in seeds from CHO and JAM (40% and 39%, respectively) which differed significantly from seeds that originated from CZA (22%). Moreover, we found that 3 days of interruption after 3 and 6, and 9 weeks significantly differed GE in seeds from JAM (14%) and CZA (2%).

According to climate change predictions, future winter warm spells will be longer and warmer than today. In our study we assumed that future warm spells would last 5 days at a temperature of 25/15°C. We found that the occurrence of this type of warm spell had a significant effect on GE only if cold stratification was interrupted after 6 weeks. After this treatment, seeds from JAM (41%) had a significantly higher GE than those from CZA and LEB (22% and 17%, respectively) (Figure S3).

Germination capacity (GC)

Analyzing the P×D×W interaction, we found that a 1-day warm spell after 6 weeks of cold stratification resulted in a significantly lower GC for seeds from LEB (42%) compared to seeds from JAM and CHO (67% and 55%, respectively) – Figure S1. As in the case of GE, a 1-day warm spell that occurred after 9 weeks of cold stratification caused significant differences in GC between seeds originated from JAM and CZA (72% and 48%, respectively). When a 1-day warm spell occurred after 3 and 6 weeks of cold stratification, we found that seeds from CZA had a significantly lower GC (42%) than seeds from JAM (67%) and CHO (65%). We also found that a 1-day warm spell after 3 and 9 weeks of cold stratification significantly affected GC seeds. In this case, GC in seeds from JAM was significantly higher (72%) compared to that in seeds from CZA (46%) and LEB (47%). The occurrence of a 1-day warm spell after 6 and 9 weeks of cold stratification significantly increased GC in seeds from JAM (84%)

compared to seeds from LEB (53%) and CZA (47%). Interruption of cold stratification after 3 and 6 and 9 weeks resulted in a significantly higher GC in seeds from JAM (69%) than in seeds from CHO (35%) and CZA (30%). The effect of a 3-day warm spell after 3 and 9 weeks of cold stratification on GC was significantly higher in seeds from JAM (68%) compared to seeds from CZA (39%) – Figure S2. A similar effect was found when cold stratification was interrupted for 3 days after 3 and 6 and 9 week. The 5-day warm spell that occurred after 6 or 9 or 6 and 9 weeks of cold stratification caused significantly higher GC in seeds from JAM (69%, 60%, and 69%, respectively) compared to seeds from CZA (44%, 34%, and 38%, respectively). Warm spells occurred twice i.e. after 6 and 9 weeks of cold stratification caused significantly higher GC in seeds from JAM (69%) and CHO (65%) compared to GC in seeds from CZA (39%) – Figure S3.

Final germination capacity (FGC)

`FGC was significantly affected by the duration of winter warm spells (Figure S1-3). When seeds were subjected to 1-day warm spell (15/10°C) after 3 weeks of cold stratification, seeds from the CHO and JAM populations had the highest FGC (97% and 96%, respectively) while seeds from the CZA population (88%) had significantly lower FGC (Figure S1).

The 3-day warm spell after 6 weeks of cold stratification significantly differentiated the populations with regards to FGC. Seeds from CHO and JAM were characterized by the highest FGC (97% and 96%, respectively) being significantly different from CZA (86%). When the 3-day warm spell occurred after 3 and 6 weeks of stratification, the populations differed significantly in FGC. The highest FGC was achieved by seeds from JAM (97%), differing from CZA seeds, which had significantly lower FGC (88%). The occurrence of a 3-day warm spell after 6 and 9 weeks of cold stratification significantly affected FGC, however, significant differences in FGC in this variant, occurred only between seeds from JAM (96%) and CZA (86%) – Figure S2.

A single 5-day interruption of cold stratification after 6 weeks significantly differentiated the FGC of seeds among populations. In this case, FGC of seeds from JAM and CHO (98% and 96%, respectively) differed significantly from FGC of seeds from CZA (82%). The single 5-day warm spell after 9 weeks of cold stratification also differed significantly among populations. Seeds from JAM and CHO (97% and 96%, respectively) had significantly higher FGC than seeds from CZA (85%). Significant differences were also found when stratification was interrupted after 3 and 6 weeks for a period of 5 days. FGC of seeds from JAM (99%) was significantly higher than FGC of seeds from CZA (89%) – Figure S3.

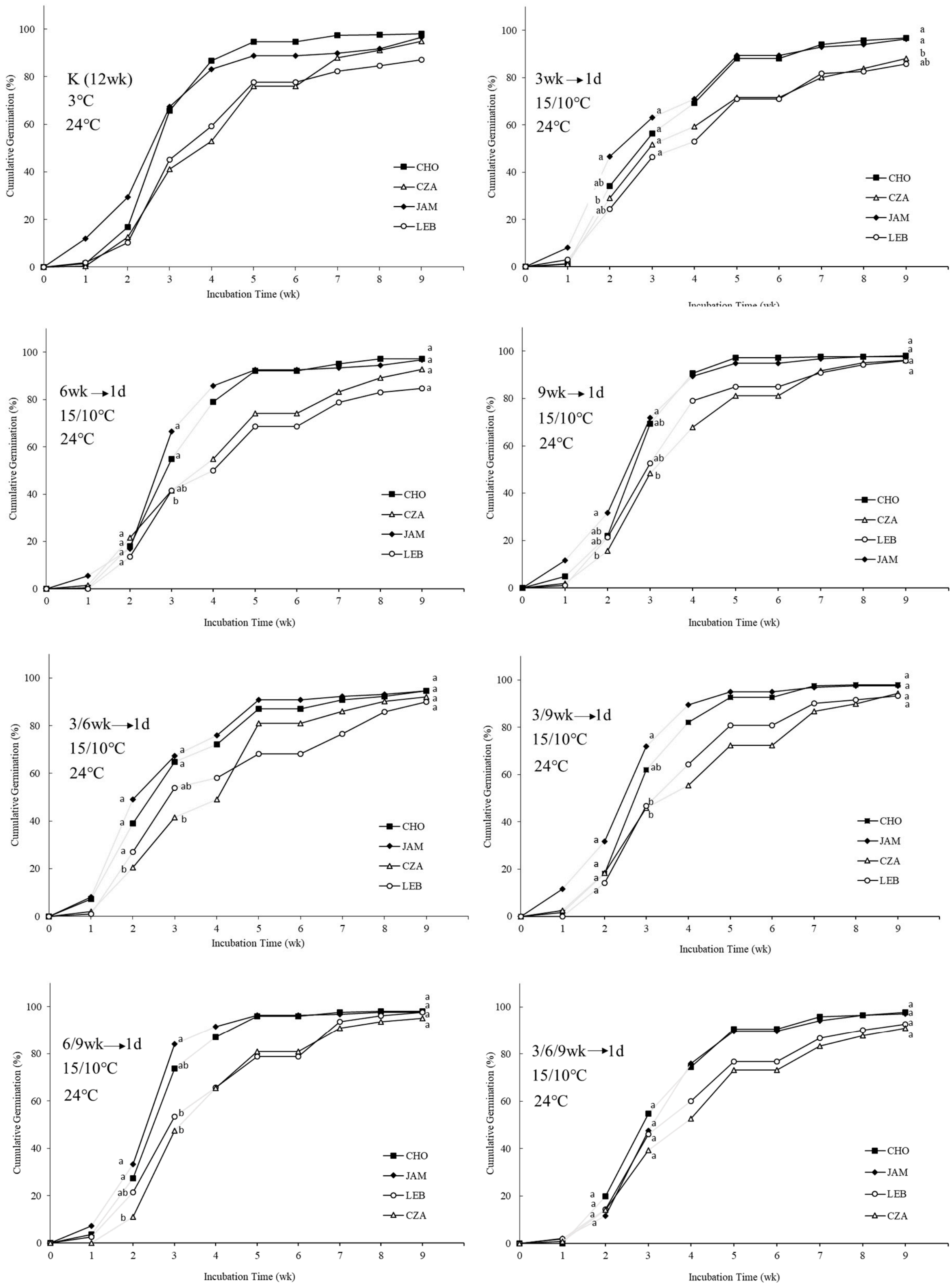

Figure S1. Differences between four populations of Douglas-fir (CHO, JAM, LEB, CZA) in seeds germination after 2 (GE), 3 (GC) and 9 (FGC) weeks of incubation at 24°C depend on time when cold stratification was interrupted for 1 day (15/10°C). 3wk, 6wk, 9wk… – week of cold stratification; CHO – Chojna, JAM – Jamy, LEB – Lębork, CZA – Czaplinek; GE – germination energy, GC – germination capacity, FGC – final germination capacity. Means with the same letter are not significantly different at p≤0.05.

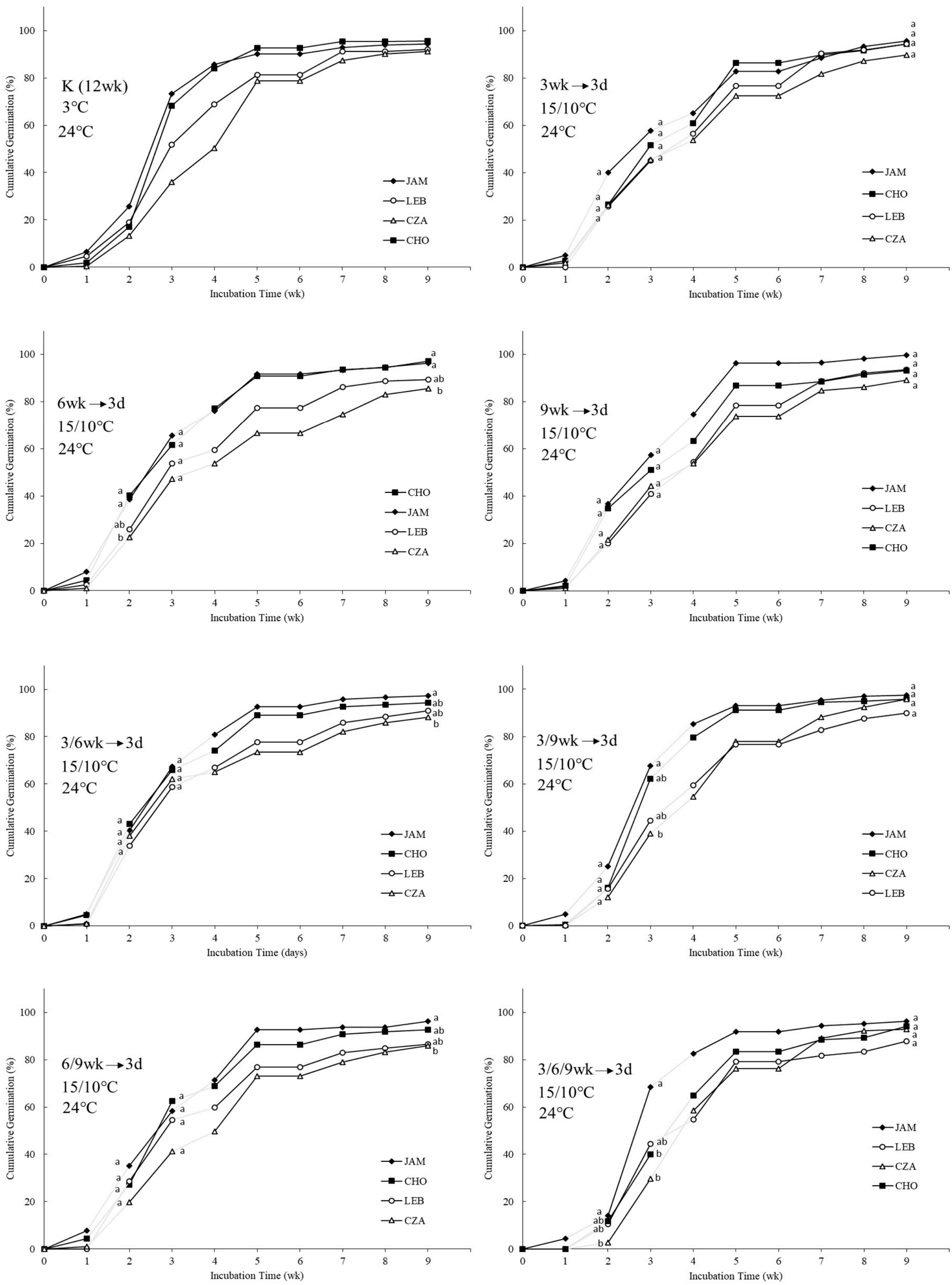

Figure S2. Differences between four populations of Douglas-fir (CHO, JAM, LEB, CZA) in seeds gemination after 2 (GE), 3 (GC) and 9 (FGC) weeks of incubation at 24°C depend on time when cold stratification was interrupted for 3 days (15/10°C). 3wk, 6wk, 9wk… – week of cold stratification; CHO – Chojna, JAM – Jamy, LEB – Lębork, CZA – Czaplinek; GE – germination energy, GC – germination capacity, FGC – final germination capacity. Means with the same letter are not significantly different at p≤0.05.

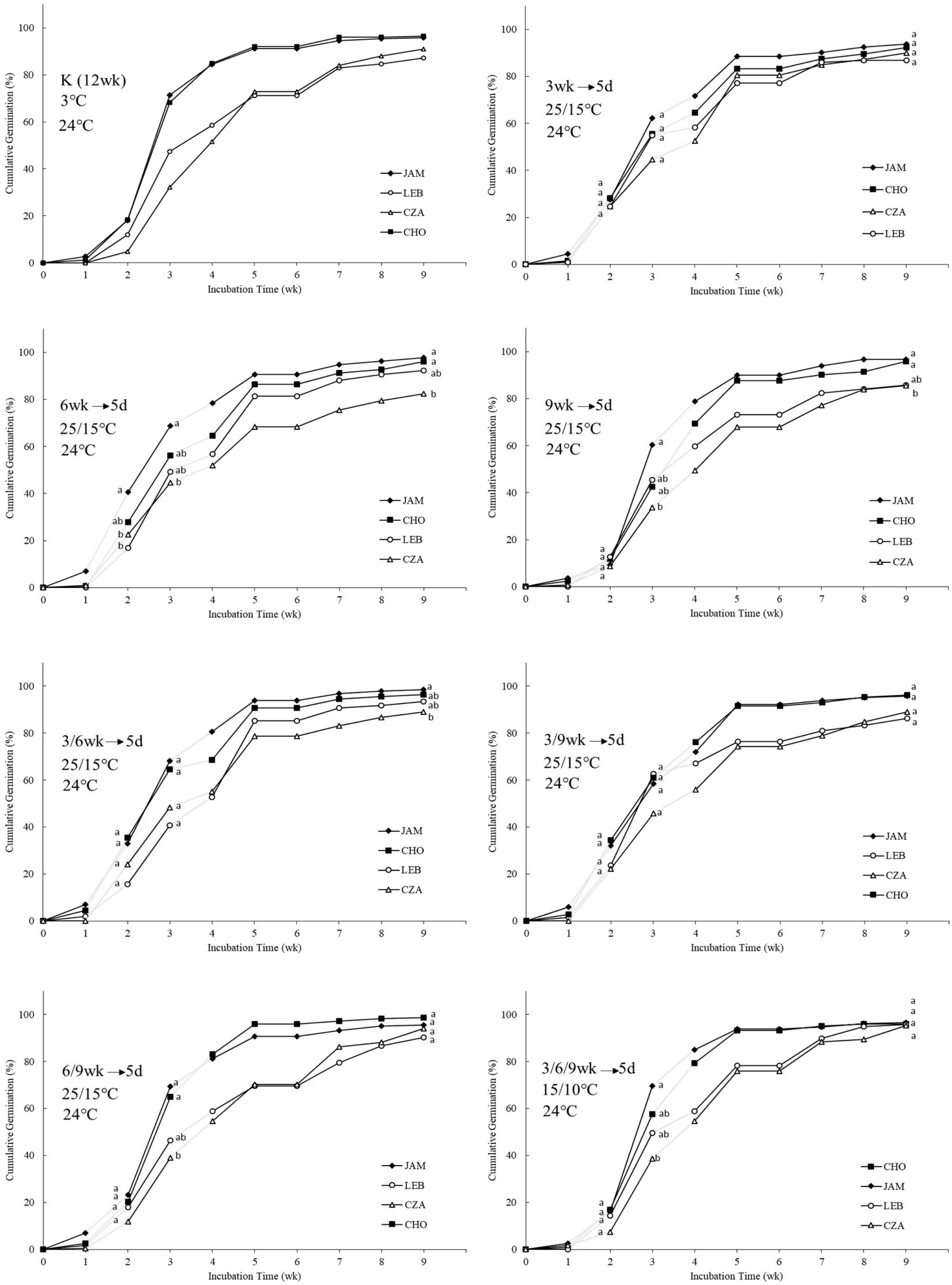

Figure S3. Differences between four populations of Douglas-fir (CHO, JAM, LEB, CZA) in seeds gemination after 2 (GE), 3 (GC) and 9 (FGC) weeks of incubation at 24°C depend on time when cold stratification was interrupted for 5 days (25/15°C). 3wk, 6wk, 9wk… – week of cold stratification; CHO – Chojna, JAM – Jamy, LEB – Lębork, CZA – Czaplinek; GE – germination energy, GC – germination capacity, FGC – final germination capacity. Means with the same letter are not significantly different at $p \leq 0.05$.

Table S4. Number of consecutive days with warm spells between 1990 - 2020 at temperature 10, 13 and 15°C and their duration in four analyzed sites.

Population	CHO			CZA			LEB			JAM		
warm spells durations (days)	nr of consecutive days with warm spells between 1990 - 2020 at temperature (°C):											
	≥10	≥13	≥15	≥10	≥13	≥15	≥10	≥13	≥15	≥10	≥13	≥15
1	57	21	4	18	4	1	42	10	3	47	6	4
2	46	9	3	24	6	1	21	2	1	24	3	0
3	14	1	0	6	0	0	7	0	0	9	0	0
4	3	0	0	5	0	0	1	0	0	6	1	0
5	5	0	0	1	0	0	1	0	0	0	0	0
6	1	0	0	0	0	0	0	0	0	1	0	0
7	0	0	0	0	0	0	2	0	0	0	0	0
8	1	0	0	2	0	0	0	0	0	1	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0
12	1	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
14	1	0	0	0	0	0	0	0	0	0	0	0