

Table S1 Effects of planting density, genotype and year on **tuber fresh weight per plant** at the location **Hilvarenbeek**, for different minimum tuber-size thresholds. Fisher's protected LDS-test ($\alpha = 0.05$) was used for analysing significant differences, which are indicated with different letter at the right-side of the mean. Capital letters were used for the *Density* main effect, lower case letters for the *Density* $\times$ *Genotype* interaction, capital letters for the *Density* $\times$ *Year* interaction and lower-case letters for the *Density* $\times$ *Genotype* $\times$ *Year* interaction. For *P*-values of the ANOVA analyses, see Table 4

Table S2 Effects of planting density, genotype and year on **number of tubers per plant** at the location **Hilvarenbeek**, for different minimum tuber-size thresholds. Fisher's protected LDS-test ($\alpha = 0.05$) was used for analysing significant differences, which are indicated with different letter at the right-side of the mean. Capital letters were used for the *Density* main effect, lower case letters for the *Density* $\times$ *Genotype* interaction, capital letters for the *Density* $\times$ *Year* interaction and lower-case letters for the *Density* $\times$ *Genotype* $\times$ *Year* interaction. For *P*-values of the ANOVA analyses, see Table 4

Tuber size	Density Plants/m ²	Tuber no/plant											
		Mean		H03		H04		H03		H04			
						2017		2018		2017		2018	
> 20 mm		6.25	11.8	11.7	11.9	12.7 G	11.5 G	11.5	12.0	14.0	9.7		
	12.5	7.8	7.2	8.3	9.1 F	6.4 E	7.7	6.6	10.4	6.3			
	25	5.2	4.9	5.5	6.3 E	4.1 D	5.9	3.9	6.8	4.2			
	50	4.0	4.3	3.7	5.3 E	2.6 BC	5.5	3.1	5.2	2.2			
	100	2.5	2.5	2.5	3.5 CD	1.5 AB	3.5	1.5	3.4	1.5			
	200	1.4	1.5	1.3	1.9 B	0.9 A	1.9	1.1	1.8	0.7			
> 28 mm		6.25	8.4	8.6	8.2	9.6 G	7.7 F	9.0	8.1	10.2	6.2		
	12.5	5.4	5.3	5.6	6.6 E	4.3 D	6.0	4.6	7.2	4.0			
	25	3.4	3.5	3.4	4.1 D	2.8 C	4.1	2.9	4.1	2.7			
	50	2.3	2.7	1.9	2.9 C	1.7 B	3.3	2.0	2.6	1.3			
	100	1.1	1.1	1.0	1.3 AB	0.8 AB	1.4	0.9	1.2	0.7			
	200	0.5	0.5	0.4	0.5 A	0.4 A	0.5	0.5	0.5	0.3			
> 35 mm		6.25	4.9	5.2	4.7	6.5 F	3.9 E	6.2	4.2	6.7	2.6		
	12.5	3.0	3.2	2.9	4.1 E	2.0 D	4.1	2.2	4.1	1.7			
	25	1.7	1.9	1.4	2.2 D	1.2 C	2.4	1.5	1.9	0.9			
	50	0.9	1.2	0.7	1.2 C	0.7 BC	1.5	0.9	0.9	0.5			
	100	0.3	0.4	0.3	0.4 AB	0.2 AB	0.5	0.3	0.4	0.2			
	200	0.1	0.2	0.1	0.1 AB	0.1 A	0.2	0.1	0.1	0.1			
> 50 mm		6.25	0.8	1.0 d	0.4 c	1.3 D	0.1 B	1.6	0.5	1.1	0.1		
	12.5	0.5	0.5 c	0.5 c	0.9 C	0.1 AB	0.9	0.2	0.9	0.1			
	25	0.2	0.3 b	0.1 ab	0.3 B	0.1 AB	0.4	0.1	0.2	0.0			
	50	0.1	0.1 ab	0.0 a	0.1 B	0.0 A	0.1	0.1	0.0	0.0			
	100	0.0	0.0 a	0.0 a	0.0 A	0.0 A	0.0	0.0	0.0	0.0			
	200	0.0	0.0 a	0.0 a	0.0 A	0.0 A	0.0	0.0	0.0	0.0			
> 60 mm		6.25	0.2	0.2 c	0.1 b	0.3 D	0.1 B	0.4	0.1	0.2	0.0		
	12.5	0.1	0.1 b	0.1 b	0.1 C	0.0 AB	0.1	0.0	0.2	0.0			
	25	0.0	0.1 b	0.0 a	0.1 B	0.0 AB	0.1	0.0	0.0	0.0			
	50	0.0	0.0 a	0.0 a	0.0 AB	0.0 AB	0.0	0.0	0.0	0.0			
	100	0.0	0.0 a	0.0 a	0.0 A	0.0 A	0.0	0.0	0.0	0.0			
	200	0.0	0.0 a	0.0 a	0.0 A	0.0 A	0.0	0.0	0.0	0.0			
> 70 mm		6.25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
	25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
	50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
	200	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		

[illegible]

Table S4 Effects of planting density, genotype and year on **number of tubers per ha** at the location **Hilvarenbeek**, for different minimum tuber-size thresholds. Fisher's protected LDS-test ($\alpha = 0.05$) was used for analysing significant differences, which are indicated with different letter at the right-side of the mean. Capital letters were used for the *Density* main effect, lower case letters for the *Density* $\times$ *Genotype* interaction, capital letters for the *Density* $\times$ *Year* interaction and lower-case letters for the *Density* $\times$ *Genotype* $\times$ *Year* interaction. For *P*-values of the ANOVA analyses, see Table 4

Tuber size	Density Plants/m ²	Tuber no ×1000/ha									
		Mean		H03		H04		H03		H04	
> 20 mm											
	6.25	737	732 a	741 ab	796 A	720 A	716	748	877	606	
	12.5	969	894 ab	1043 bc	1132 BC	805 A	964	824	1301	786	
	25	1298	1226 cd	1370 d	1580 DE	1016 AB	1471	981	1689	1051	
	50	1992	2140 e	1844 e	2673 F	1311 CD	2744	1536	2603	1086	
	100	2478	2502 f	2453 f	3481 G	1475 D	3523	1481	3438	1469	
	200	2766	2977 g	2556 f	3752 G	1781 E	3843	2110	3660	1451	
> 28 mm											
	6.25	523	535 ab	512 a	599 AB	484 A	563	508	636	388	
	12.5	678	659 ab	696 abc	822 C	533 AB	746	572	898	494	
	25	858	865 cd	851 cd	1024 D	692 BC	1015	715	1033	669	
	50	1157	1339 g	974 def	1465 F	848 C	1652	1027	1278	669	
	100	1052	1141 f	963 de	1304 E	800 C	1398	883	1210	717	
	200	927	1069 ef	786 bc	1037 D	818 C	1095	1043	979	593	
> 35 mm											
	6.25	307	324 ab	291 ab	403	241	388	261	419	163	
	12.5	380	395 b	365 b	514	246	513	277	515	215	
	25	420	487 bc	354 b	546	295	606	368	486	222	
	50	473	599 c	347 ab	593	353	743	455	442	251	
	100	330	369 b	292 ab	411	249	456	281	367	217	
	200	255	305 ab	206 a	297	214	339	271	255	157	
> 50 mm											
	6.25	50	63 c	38 b	83 C	24 AB	97	28	69	6	
	12.5	65	68 c	62 c	114 D	16 A	114	21	114	10	
	25	44	65 c	23 ab	66 C	22 AB	94	35	38	9	
	50	29	47 bc	11 a	41 B	17 A	65	29	17	6	
	100	13	16 a	11 a	20 AB	7 A	25	6	14	8	
	200	9	14 a	4 a	11 A	8 A	13	15	9	0	
> 60 mm											
	6.25	9	14 de	5 abc	16 B	4 A	23	5	9	0	
	12.5	10	10 cde	10 cde	18 B	2 A	17	2	19	2	
	25	9	15 e	3 ab	14 B	3 A	22	7	6	0	
	50	4	8 bcd	0 a	5 A	3 A	10	6	0	0	
	100	1	1 ab	1 ab	2 A	0 A	2	0	2	0	
	200	1	0 a	2 ab	2 A	0 A	0	0	4	0	
> 70 mm											
	6.25	1	2	0	1	1	2	2	0	0	
	12.5	1	2	1	3	0	3	0	2	0	
	25	2	1	2	3	0	3	0	4	0	
	50	1	2	0	2	0	4	0	0	0	
	100	1	0	1	1	0	0	0	2	0	
	200	1	0	2	2	0	0	0	4	0	

Tuber size	Density Plants/m ²	Tuber FW (kg/plant)								
		Mean								
		H03		H04		H03		H04		
> 20 mm					2017	2018	2017	2018	2017	2018
	3.125	0.399	0.387	0.412	0.553 F	0.246 D	0.532	0.242	0.573	0.251
	4.6875	0.303	0.283	0.322	0.371 E	0.234 D	0.332	0.235	0.411	0.233
	6.25	0.283	0.271	0.295	0.362 E	0.204 CD	0.363	0.179	0.362	0.229
	12.5	0.191	0.203	0.178	0.243 D	0.139 B	0.265	0.141	0.220	0.137
	25	0.119	0.115	0.123	0.155 BC	0.083 A	0.132	0.098	0.178	0.069
	50	0.057	0.064	0.050	0.069 A	0.045 A	0.077	0.051	0.061	0.040
> 28 mm										
	3.125	0.345	0.344	0.346	0.486 F	0.204 D	0.479	0.210	0.494	0.198
	4.6875	0.258	0.247	0.270	0.316 E	0.201 D	0.288	0.207	0.345	0.194
	6.25	0.241	0.237	0.245	0.311 E	0.171 D	0.319	0.155	0.303	0.187
	12.5	0.151	0.169	0.133	0.189 D	0.113 BC	0.213	0.126	0.166	0.101
	25	0.092	0.094	0.090	0.119 C	0.065 AB	0.110	0.078	0.129	0.051
	50	0.041	0.047	0.034	0.048 A	0.034 A	0.055	0.040	0.041	0.027
> 35 mm										
	3.125	0.259	0.267	0.251	0.392 F	0.126 D	0.389	0.145	0.395	0.107
	4.6875	0.180	0.175	0.184	0.232 E	0.127 D	0.214	0.136	0.250	0.118
	6.25	0.163	0.168	0.157	0.227 E	0.099 CD	0.245	0.092	0.210	0.105
	12.5	0.095	0.121	0.069	0.125 D	0.065 BC	0.154	0.088	0.097	0.041
	25	0.052	0.059	0.044	0.073 C	0.030 AB	0.077	0.041	0.069	0.019
	50	0.020	0.024	0.017	0.026 AB	0.015 A	0.029	0.019	0.023	0.010
> 50 mm										
	3.125	0.068	0.096 d	0.041 c	0.113 C	0.023 C	0.152	0.039	0.074	0.007
	4.6875	0.030	0.039 c	0.021 abc	0.044 B	0.016 ABC	0.051	0.027	0.037	0.004
	6.25	0.026	0.039 c	0.013 ab	0.043 B	0.010 AB	0.061	0.018	0.024	0.003
	12.5	0.013	0.024 bc	0.003 ab	0.018 A	0.009 AB	0.033	0.015	0.002	0.003
	25	0.007	0.010 ab	0.004 ab	0.012 A	0.003 AB	0.016	0.005	0.008	0.001
	50	0.001	0.002 ab	0.000 a	0.002 A	0.000 A	0.002	0.001	0.001	0.000
> 60 mm										
	3.125	0.011	0.014	0.009	0.020	0.003	0.023	0.005	0.018	0.000
	4.6875	0.008	0.012	0.005	0.009	0.008	0.009	0.015	0.010	0.000
	6.25	0.003	0.005	0.000	0.005	0.000	0.011	0.000	0.000	0.000
	12.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	25	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
> 70 mm										
	3.125	0.003	0.000	0.007	0.007	0.000	0.000	0.000	0.014	0.000
	4.6875	0.005	0.004	0.005	0.009	0.000	0.009	0.000	0.010	0.000
	6.25	0.002	0.004	0.000	0.004	0.000	0.007	0.000	0.000	0.000
	12.5	0.000								

Tuber size	Density Plants/m ²	Tuber FW (kg/plant)								
		Mean								
		H03		H04		H03		H04		
> 20 mm					2017	2018	2017	2018	2017	2018
	3.125	0.399	0.387	0.412	0.553 F	0.246 D	0.532	0.242	0.573	0.251
	4.6875	0.303	0.283	0.322	0.371 E	0.234 D	0.332	0.235	0.411	0.233
	6.25	0.283	0.271	0.295	0.362 E	0.204 CD	0.363	0.179	0.362	0.229
	12.5	0.191	0.203	0.178	0.243 D	0.139 B	0.265	0.141	0.220	0.137
	25	0.119	0.115	0.123	0.155 BC	0.083 A	0.132	0.098	0.178	0.069
	50	0.057	0.064	0.050	0.069 A	0.045 A	0.077	0.051	0.061	0.040
> 28 mm										
	3.125	0.345	0.344	0.346	0.486 F	0.204 D	0.479	0.210	0.494	0.198
	4.6875	0.258	0.247	0.270	0.316 E	0.201 D	0.288	0.207	0.345	0.194
	6.25	0.241	0.237	0.245	0.311 E	0.171 D	0.319	0.155	0.303	0.187
	12.5	0.151	0.169	0.133	0.189 D	0.113 BC	0.213	0.126	0.166	0.101
	25	0.092	0.094	0.090	0.119 C	0.065 AB	0.110	0.078	0.129	0.051
	50	0.041	0.047	0.034	0.048 A	0.034 A	0.055	0.040	0.041	0.027
> 35 mm										
	3.125	0.259	0.267	0.251	0.392 F	0.126 D	0.389	0.145	0.395	0.107
	4.6875	0.180	0.175	0.184	0.232 E	0.127 D	0.214	0.136	0.250	0.118
	6.25	0.163	0.168	0.157	0.227 E	0.099 CD	0.245	0.092	0.210	0.105
	12.5	0.095	0.121	0.069	0.125 D	0.065 BC	0.154	0.088	0.097	0.041
	25	0.052	0.059	0.044	0.073 C	0.030 AB	0.077	0.041	0.069	0.019
	50	0.020	0.024	0.017	0.026 AB	0.015 A	0.029	0.019	0.023	0.010
> 50 mm										
	3.125	0.068	0.096 d	0.041 c	0.113 C	0.023 C	0.152	0.039	0.074	0.007
	4.6875	0.030	0.039 c	0.021 abc	0.044 B	0.016 ABC	0.051	0.027	0.037	0.004
	6.25	0.026	0.039 c	0.013 ab	0.043 B	0.010 AB	0.061	0.018	0.024	0.003
	12.5	0.013	0.024 bc	0.003 ab	0.018 A	0.009 AB	0.033	0.015	0.002	0.003
	25	0.007	0.010 ab	0.004 ab	0.012 A	0.003 AB	0.016	0.005	0.008	0.001
	50	0.001	0.002 ab	0.000 a	0.002 A	0.000 A	0.002	0.001	0.001	0.000
> 60 mm										
	3.125	0.011	0.014	0.009	0.020	0.003	0.023	0.005	0.018	0.000
	4.6875	0.008	0.012	0.005	0.009	0.008	0.009	0.015	0.010	0.000
	6.25	0.003	0.005	0.000	0.005	0.000	0.011	0.000	0.000	0.000
	12.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	25	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
> 70 mm										
	3.125	0.003	0.000	0.007	0.007	0.000	0.000	0.000	0.014	0.000
	4.6875	0.005	0.004	0.005	0.009	0.000	0.009	0.000	0.010	0.000
	6.25	0.002	0.004	0.000	0.004	0.000	0.007	0.000	0.000	0.000
	12.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	25	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table S6 Effects of planting density, genotype and year on **number of tubers per plant** at the location **Est**, for different minimum tuber-size thresholds. Fisher's protected LDS-test ($\alpha = 0.05$) was used for analysing significant differences, which are indicated with different letter at the right-side of the mean. Capital letters were used for the *Density* main effect, lower case letters for the *Density* $\times$ *Genotype* interaction, capital letters for the *Density* $\times$ *Year* interaction and lower-case letters for the *Density* $\times$ *Genotype* $\times$ *Year* interaction. For *P*-values of the ANOVA analyses, see Table 5

Tuber size	Density Plants/m ²	Tuber no/plant									
		Mean		H03		H04		H03		H04	
> 20 mm				H03	H04	2017	2018	H03	2018	H04	2018
	3.125	9.8	7.8 e	11.8 g	13.0 F	6.6 CD	10.3	5.2	15.7	8.0	
	4.6875	8.2	6.4 d	9.9 f	10.2 E	6.2 CD	7.6	5.2	12.7	7.2	
	6.25	7.9	6.1 cd	9.7 f	9.5 E	6.3 CD	7.8	4.5	11.3	8.1	
	12.5	5.6	4.7 b	6.6 de	7.4 D	3.9 B	6.4	3.0	8.4	4.9	
	25	4.0	3.0 a	4.9 bc	5.4 C	2.5 AB	3.4	2.7	7.5	2.3	
	50	2.0	2.0 a	2.0 a	2.8 B	1.1 A	2.7	1.2	2.9	1.1	
> 28 mm											
	3.125	5.9	4.9 ef	6.9 g	7.8 F	4.0 D	6.4	3.3	9.2	4.7	
	4.6875	5.0	4.1 de	5.9 f	5.9 E	4.2 D	4.6	3.7	7.2	4.6	
	6.25	4.7	3.8 de	5.7 f	5.6 E	3.9 D	4.6	3.0	6.5	4.9	
	12.5	3.0	2.6 bc	3.4 cd	3.7 D	2.3 BC	3.2	2.1	4.2	2.6	
	25	2.0	1.7 ab	2.3 b	2.6 C	1.5 AB	1.8	1.6	3.3	1.3	
	50	0.9	0.9 a	0.8 a	1.1 A	0.6 A	1.1	0.7	1.1	0.6	
> 35 mm											
	3.125	3.2	2.8	3.6	4.8 G	1.6 DE	3.9	1.6	5.7	1.6	
	4.6875	2.5	2.2	2.9	3.2 F	1.8 E	2.6	1.8	3.9	1.9	
	6.25	2.2	1.9	2.6	2.9 F	1.5 DE	2.6	1.1	3.3	1.9	
	12.5	1.3	1.4	1.2	1.7 E	0.9 BC	1.7	1.1	1.7	0.7	
	25	0.7	0.7	0.7	1.0 CD	0.4 AB	0.9	0.6	1.2	0.3	
	50	0.3	0.3	0.3	0.4 AB	0.2 A	0.4	0.2	0.4	0.1	
> 50 mm											
	3.125	0.4	0.5	0.3	0.7 C	0.1 A	0.9	0.2	0.5	0.1	
	4.6875	0.2	0.2	0.2	0.3 B	0.1 A	0.3	0.1	0.3	0.0	
	6.25	0.2	0.3	0.1	0.3 B	0.1 A	0.4	0.1	0.2	0.0	
	12.5	0.1	0.2	0.0	0.1 A	0.1 A	0.2	0.1	0.0	0.0	
	25	0.1	0.1	0.0	0.1 A	0.0 A	0.1	0.0	0.1	0.0	
	50	0.0	0.0	0.0	0.0 A	0.0 A	0.0	0.0	0.0	0.0	
> 60 mm											
	3.125	0.04 C	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	
	4.6875	0.03 BC	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	
	6.25	0.01 AB	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	
	12.5	0.00 A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	25	0.01 AB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	50	0.00 A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
> 70 mm											
	3.125	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	
	4.6875	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	
	6.25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

[illegible][illegible]

Table S9 Effects of planting density, genotype and year on **tuber fresh weight and number of tubers per ha** for **commercial classes** *Baby Bakers*, *Seed Tubers* and *Large Tubers* at the location **Hilvarenbeek**. Fisher's protected LDS-test ($\alpha = 0.05$) was used for analysing significant differences, which are indicated with different letter at the right-side of the mean. Capital letters were used for the *Density* main effect, lower case letters for the *Density* $\times$ *Genotype* interaction, capital letters for the *Density* $\times$ *Year* interaction and lower-case letters for the *Density* $\times$ *Genotype* $\times$ *Year* interaction. For *P*-values of the ANOVA analyses, see Table 6

Commercial class	Density Plants/m ²	Tuber FW (Mg/ha)									
		Mean		H03		H04		H03		H04	
						2017	2018	2017	2018	2017	2018
Baby Bakers (20 < s ≤ 35)	6.25	10.1	10.2 a	9.1 a	9.0 A	11.1 A	8.8	11.7	9.2	9.0	
	12.5	13.2	12.5 a	13.9 a	13.6 AB	12.8 A	11.4	13.6	15.8	12.1	
	25	20.1	19.5 b	20.8 b	22.3 CD	17.9 BC	22.7	16.2	22.0	19.6	
	50	34.2	37.9 d	30.5 c	43.5 F	24.9 D	48.0	27.8	38.9	22.0	
	100	45.0	48.6 f	41.4 de	59.8 G	30.3 E	66.3	31.0	53.3	29.6	
	200	52.1	58.7 g	45.5 ef	65.0 H	39.2 F	70.6	46.8	59.3	31.7	
Seed Tuber (28 < s ≤ 50)	6.25	25.3	26.4 ab	21.7 a	28.8 ABC	21.9 A	29.3	23.6	28.3	15.1	
	12.5	31.2	33.8 bc	28.6 ab	38.3 DEF	24.1 AB	40.2	27.4	36.3	20.8	
	25	39.5	45.9 de	33.1 bc	48.0 GH	31.0 BCD	55.8	36.0	40.2	26.0	
	50	51.8	64.4 f	39.2 cd	63.9 I	39.8 EF	80.8	48.1	47.0	31.4	
	100	45.3	51.7 e	38.9 cd	55.4 H	35.3 CDE	63.8	39.6	46.9	31.0	
	200	40.8	49.2 e	32.3 bc	45.3 FG	36.2 CDE	52.3	46.1	38.3	26.3	
Large Tuber (> 50 mm)	6.25	9.4	12.1 e	5.5 bc	14.7 CD	4.0 AB	19.3	4.8	10.1	0.9	
	12.5	10.3	11.6 e	9.0 de	17.9 D	2.7 AB	19.5	3.7	16.3	1.6	
	25	7.9	11.8 e	4.0 b	11.8 C	3.9 AB	17.0	6.6	6.7	1.3	
	50	4.5	7.5 cd	1.5 ab	6.1 B	2.8 AB	10.1	4.9	2.1	0.8	
	100	1.9	2.4 ab	1.4 ab	2.6 AB	1.3 A	3.6	1.3	1.6	1.3	
	200	1.0	1.9 ab	0.2 a	0.9 A	1.1 A	1.5	2.3	0.4	0.0	
Tuber no × 1000/ha											
Baby Bakers (20 < s ≤ 35)	6.25	436	408	451	393 A	479AB	328	488	458	444	
	12.5	588	499	678	618 AB	558 AB	451	546	786	571	
	25	878	739	1016	1034 DE	721 BC	865	613	1203	829	
	50	1519	1540	1498	2081G	957 CD	2001	1080	2161	835	
	100	2148	2133	2162	3069 H	1226 E	3067	1200	3071	1252	
	200	2511	2672	2350	3454 I	1567 F	3504	1840	3405	1295	
Seed Tuber (28 < s ≤ 50)	6.25	488	473 a	474 a	516 AB	460 A	466	480	567	381	
	12.5	612.6	591 a	634 ab	708 CD	518 AB	631	552	784	484	
	25	814	801bcd	828 cd	958 EF	670 BC	921	681	996	660	
	50	1127	1293 g	962 def	1424 G	831 DE	1587	998	1261	663	
	100	1038	1125 fg	952 de	1284 G	793 CD	1373	877	1195	708	
	200	918	1055 ef	782 bc	1026 F	811 CDE	1082	1028	970	593	
Large Tuber (> 50 mm)	6.25	50	63 c	38 b	83 C	24 AB	97	28	69	6	
	12.5	65	68 c	62 c	114 D	16 A	114	21	114	10	
	25	44	65 c	23 ab	66 C	22 AB	94	35	38	9	
	50	29	47 bc	11 a	41 B	17 A	65	29	17	6	
	100	13	16 a	11 a	20 AB	7 A	25	6	14	8	
	200	9	14 a	4 a	11 A	8 A	13	15	9	0	

Table S10 Effects of planting density, genotype and year on **tuber fresh weight and number of tubers per ha for commercial classes *Baby Bakers*, *Seed Tubers* and *Large Tubers*** at the location **Est.** Fisher's protected LDS-test ($\alpha = 0.05$) was used for analysing significant differences, which are indicated with different letter at the right-side of the mean. Capital letters were used for the *Density* main effect, lower case letters for the *Density* $\times$ *Genotype* interaction, capital letters for the *Density* $\times$ *Year* interaction and lower-case letters for the *Density* $\times$ *Genotype* $\times$ *Year* interaction. For *P*-values of the ANOVA analyses, see Table 6

analyses, see Table 6										
Commercial class	Density Plants/m ²		Tuber FW (Mg/ha)							
	Mean		H03		H04		H03		H04	
Baby Bakers (20 < s ≤ 35)					2017	2018	2017	2018	2017	2018
	3.125	4.4	3.7	5.0	5.0	3.8	4.5 a	3.0 a	5.6 ab	4.5 a
	4.6875	5.7	5.0	6.4	6.5	5.0	5.5 ab	4.6 a	7.5 abc	5.4 ab
	6.25	7.5	6.4	8.6	8.4	6.6	7.4 abc	5.4 ab	9.5 bcde	7.7 abcd
	12.5	11.9	10.2	13.6	14.6	9.2	13.9 ef	6.6 ab	15.4 fg	11.9 cdef
	25	16.9	13.9	19.9	20.5	13.3	13.8 ef	14.1 ef	27.3 h	12.5 def
	50	18.4	19.8	17.0	21.5	15.3	23.9 h	15.7 fg	19.0 g	14.9 fg
Seed Tuber (28 < s ≤ 50)										
	3.125	8.7	7.8 a	9.5 ab	11.7	5.6	10.2	5.3	13.1	5.9
	4.6875	10.7	9.8 ab	11.7 bc	12.8	8.7	11.1	8.4	14.4	8.9
	6.25	13.4	12.3 bc	14.5 cd	16.8	10.0	16.1	8.6	17.4	11.5
	12.5	17.2	18.1 ef	16.4 de	21.4	13.1	22.4	13.8	20.4	12.3
	25	21.2	20.9 fg	21.4 fg	26.9	15.4	23.5	18.3	30.3	12.5
	50	19.9	22.9 g	17.0 de	23.2	16.6	26.3	19.5	20.2	13.7
Large Tuber (> 50 mm)										
	3.125	2.1 B	3.0	1.3	3.5	0.7	4.7	1.2	2.3	0.2
	4.6875	1.4 AB	1.8	1.0	2.1	0.7	2.4	1.3	1.7	0.2
	6.25	1.7 B	2.5	0.8	2.7	0.6	3.8	1.1	1.5	0.2
	12.5	1.7 B	3.0	0.3	2.2	1.1	4.1	1.8	0.3	0.4
	25	1.8 B	2.5	1.1	2.9	0.7	3.9	1.2	1.9	0.3
	50	0.5 A	0.8	0.2	0.8	0.2	1.2	0.5	0.4	0.0
Tuber no ×1000/ha										
Baby Bakers (20 < s ≤ 35)										
	3.125	206	156	256	257	155	200 ab	113 a	315 abc	198 ab
	4.6875	264	200	328	324	204	237 ab	163 a	411 bcde	245 ab
	6.25	356	268	444	413	298	323 abc	213 ab	503 cde	384 bcd
	12.5	541	405	678	706	377	581 de	228 ab	831 f	525 cde
	25	803	569	1038	1097	509	619 ef	519 cde	1575 h	500 cde
	50	839	822	856	1202	477	1159 g	485 cde	1244 g	469 cde
Seed Tuber (28 < s ≤ 50)										
	3.125	171	135	208	222	120	173 abcd	97 a	272cdefgh	144 ab
	4.6875	226	183	268	260	191	199 abcde	166 abc	321 fghi	216 bcdef
	6.25	284	222	347	328	241	264cdefgh	180 abcd	392 ij	302 efghi
	12.5	364	308	420	444	284	369 hij	247bcdefg	519 kl	322 fghi
	25	491	411	570	623	358	431 jk	391 ij	816 m	325 ghij
	50	437	455	419	561	313	563 l	347 ghij	559 l	278 defgh
Large Tuber (> 50 mm)										
	3.125	13 B	17	9	22	4	27	6	16	2
	4.6875	9 AB	11	8	15	4	15	6	14	1
	6.25	12 B	16	7	19	5	25	8	13	2
	12.5	12 B	20	3	16	8	28	13	3	3
	25	13 B	14	11	20	5	22	6	19	3
	50	4 A	6	2	6	2	9	3	3	0

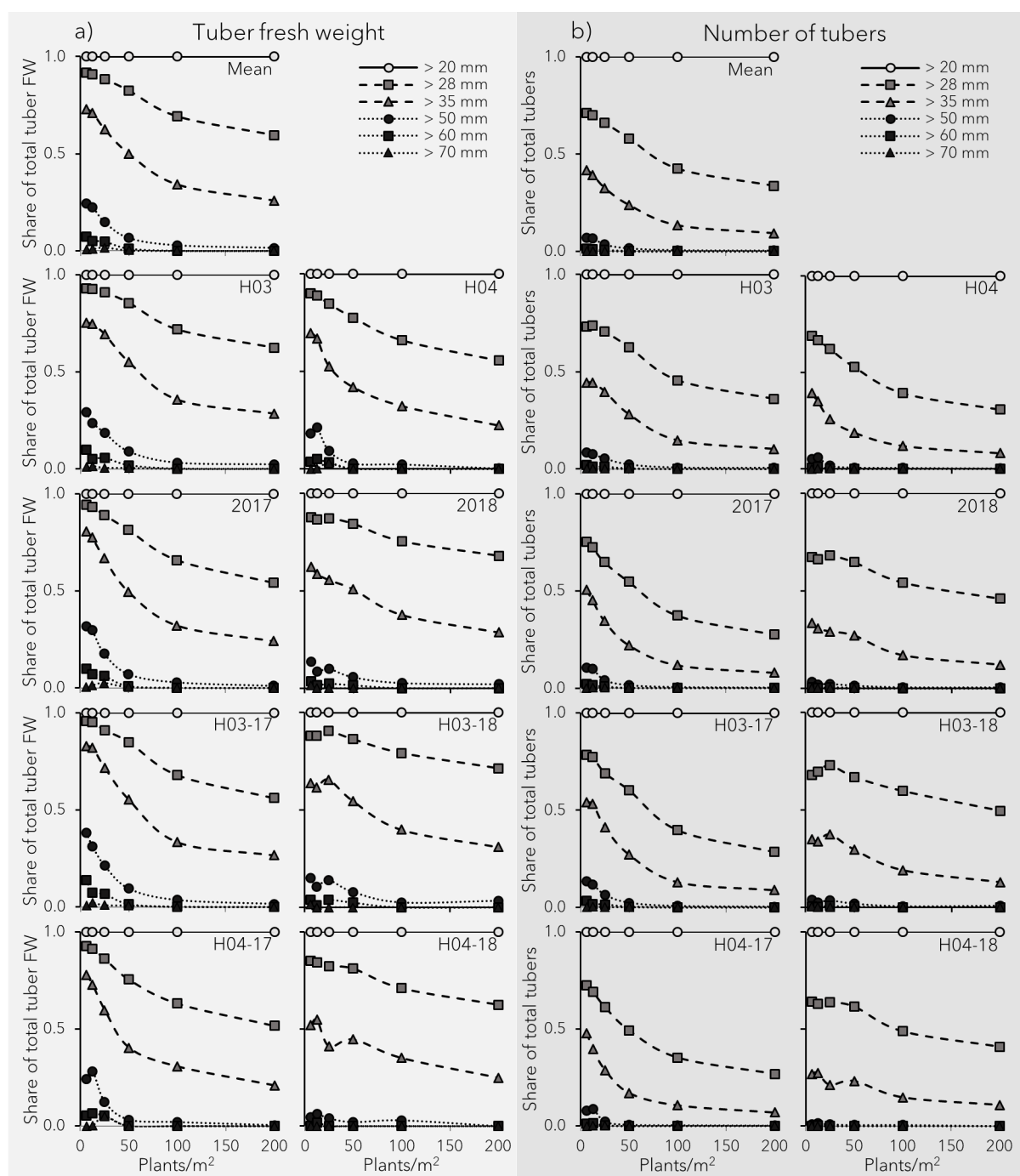


Fig. S1 Relative shares of different tuber-size thresholds as part of the total produced tuber fresh weight and tuber number over increased planting densities for the location Hilvarenbeek

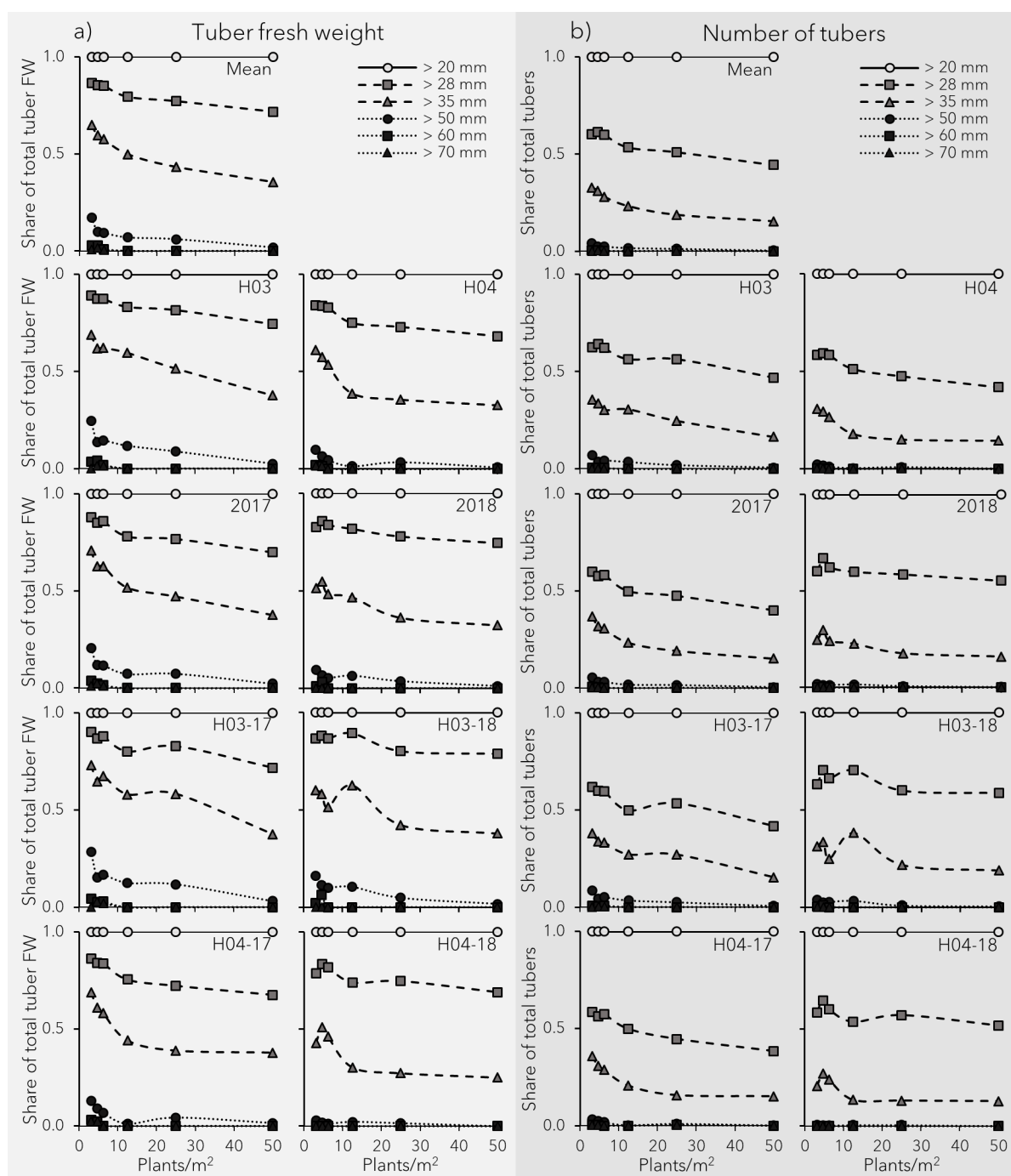


Fig. S2 Relative shares of different tuber-size thresholds as part of the total produced tuber fresh weight and tuber number over increased planting densities for the location Est



Fig. S3 Hybrid seedlings at the moment of transplanting in clay soil in Est. Seedlings were planted alternately in two rows, c. 3 cm left and right from the centre of the ridge. Distance between ridges was 75 cm. Panel **a**, at the top, depicts the planting density of 25 plants /m², which included a distance of 5.3 cm between consecutive plants in the ridge with 75 cm between ridges. Panel **b**, at the bottom, depicts the planting density of 50 plants /m², which included a distance of 2.7 cm between consecutive plants in the ridge