Table S1. Mean results of pigment analyses performed on samples of the first sampling stage (tillering). Results of the Dunnett post-hoc test were reported using the Control (C0) as referring sample within each cultivar. Eight technical replicates were performed out of each biological replicate.

Sources of variation	1st year, 1st sampling (tillering)			2nd year, 1st sampling (tillering)		
	Chlorophyll A	*Chlorophyll B*	*Carotenoid*	*Chlorophyll A*	*Chlorophyll B*	*Carotenoid*
Anco Marzio						
C0	0.8573	0.2559	0.2553	0.9518	0.2677	0.259
P1	0.8314 ns	0.2572 ns	0.2513 ns	1.072 ns	0.3407 *	0.2731 ns
P2	0.9284 ns	0.2947 ns	0.2694 ns	1.129 ns	0.3468 **	0.2967 ns
T1	0.8941 ns	0.2832 ns	0.2624 ns	0.8282 ns	0.2722 ns	0.2299 ns
T2	0.9954 ns	0.3071 ns	0.2801 ns	0.9417 ns	0.3007 ns	0.2764 ns
GC1	0.7118 ns	0.227 ns	0.2162 ns	0.7028 **	0.2184 ns	0.2169 ns
GC2 + 1/2 P1	0.7539 ns	0.2345 ns	0.2483 ns	0.9688 ns	0.3074 ns	0.2584 ns
Vespucci						
C0	0.6817	0.2208	0.2096	0.7313	0.2175	0.2067
P1	0.7529 ns	0.243 ns	0.2137 ns	0.8324 ns	0.2818 *	0.2266 ns
P2	0.7906 ns	0.2599 ns	0.2299 ns	0.9991 ***	0.3376 ****	0.271 **
T1	0.8267 ns	0.2473 ns	0.2381 ns	0.8904 ns	0.3153 ***	0.2487 ns
T2	0.8911 *	0.2882 ns	0.257 *	1.106 ****	0.3795 ****	0.2856 ****
GC1	0.926 **	0.2983 *	0.2759 ***	0.5765 ns	0.1898 ns	0.1656 ns
GC2 + 1/2 P1	0.9896 ***	0.3258 **	0.2862 ***	0.9846 **	0.332 ****	0.2892 ****
Significance						
Cultivar (C)	ns	ns	ns	**	ns	*
Fertilization (F)	*	ns	*	****	****	****
Interaction						
F × C	***	**	****	***	****	***

Data are reported with *p*-values. *$p \leq 0.05$; **$p \leq 0.01$; ***$p \leq 0.001$; ****$p \leq 0.0001$. ns: non-significant. For each cultivar considered, statistically significant comparisons are according to the Dunnett test at $p = 0.05$, with respect to their own control.

Table S2. Mean values results of pigment analyses performed on samples of the second sampling stage (stem elongation). Results of the Dunnett post-hoc test were reported using the Control (C0) as referring sample within each cultivar. Eight technical replicates were performed out of each biological replicate.

Sources of variation	1st year, 2nd sampling (stem elongation)			2nd year, 2nd sampling (stem elongation)		
	Chlorophyll A	*Chlorophyll B*	*Carotenoid*	*Chlorophyll A*	*Chlorophyll B*	*Carotenoid*
Anco Marzio						
C0	0.9374	0.3681	0.2816	0.6044	0.2435	0.2121
P1	1.38 ****	0.5575 ****	0.3144 **	0.9123 ****	0.3779 ****	0.2568 ***
P2	1.251 ****	0.5149 ****	0.2802 ns	0.9951 ****	0.4155 ****	0.2589 ***
T1	1.413 ****	0.5802 ****	0.2991 ns	0.8034 ****	0.3428 ****	0.2383 ns
T2	1.348 ****	0.5606 ****	0.2878 ns	0.912 ****	0.3586 ****	0.2656 ****
GC1	1.293 ****	0.5418 ****	0.3036 ns	0.6273 ns	0.2464 ns	0.2092 ns
GC2 + 1/2 P1	1.149 ****	0.4745 ***	0.2875 ns	0.751 ***	0.3001 ****	0.2365 ns
Vespucci						
C0	0.7171	0.308	0.2109	0.5189	0.2064	0.1888
P1	1.056 ****	0.4495 ****	0.2499 ***	0.8989 ****	0.3684 ****	0.2488 ****
P2	0.9572 ****	0.4182 ***	0.2363 *	1.2 ****	0.4986 ****	0.2738 ****
T1	1.085 ****	0.4114 **	0.2263 ns	0.823 ****	0.3692 ****	0.2136 ns
T2	1.207 ****	0.531 ****	0.2477 ***	0.9911 ****	0.4453 ****	0.2415 ****
GC1	0.9992 ****	0.42 ***	0.2432 **	0.5617 ns	0.2449 **	0.192 ns
GC2 + 1/2 P1	0.9846 ****	0.406 **	0.2522 ***	0.8848 ****	0.3783 ****	0.244 ****
Significance						
Cultivar (C)	****	****	****	**	****	**
Fertilization (F)	****	****	****	****	****	****
Interaction						
F × C	**	*	*	****	****	*

Data are reported with *p*-values. *$p \leq 0.05$; **$p \leq 0.01$; ***$p \leq 0.001$; ****$p \leq 0.0001$. ns: non-significant. For each cultivar considered, statistically significant comparisons are according to the Dunnett test at $p = 0.05$, with respect to their own control.

Table S3. Mean values results of pigment analyses performed on samples of the third sampling stage (kernel ripening). Results of the Dunnett post-hoc test were reported using the Control (C0) as referring sample within each cultivar. Eight technical replicates were performed out of each biological replicate.

Sources of variation	1st year, 3rd sampling (kernel ripening)			2nd year, 3rd sampling (kernel ripening)		
	Chlorophyll A	*Chlorophyll B*	*Carotenoid*	*Chlorophyll A*	*Chlorophyll B*	*Carotenoid*
Anco Marzio						
C0	0.7078	0.2008	0.2802	0.6808	0.1803	0.2597
P1	1.088 ****	0.3343 ****	0.3574 *	0.8582 ns	0.2607 **	0.2947 ns
P2	1.395 ****	0.4172 ****	0.4341 ****	1.124 ****	0.3412 ****	0.3719 ***
T1	1.122 ****	0.3502 ****	0.3688 **	0.8972 ns	0.2753 **	0.3196 ns
T2	1.152 ****	0.3416 ****	0.4125 ****	1.066 ***	0.3316 ****	0.3403 **
GC1	1.027 ***	0.3136 ****	0.3432 ns	0.7852 ns	0.2317 ns	0.2867 ns
GC2 + 1/2 P1	1.157 ****	0.3382 ****	0.4259 ****	0.9724 **	0.2994 ****	0.3211 ns
Vespucci						
C0						
P1	0.8947	0.2436	0.3203	0.5665	0.1656	0.2371
P2	0.9427 ns	0.2659 ns	0.321 ns	0.8299 *	0.2526 **	0.2815 ns
T1	1.102 ns	0.3171 *	0.3482 ns	0.9465 ***	0.2891 ****	0.2938 ns
T2	1.126 *	0.3323 **	0.3553 ns	0.7095 ns	0.2163 ns	0.2698 ns
GC1	1.195 **	0.354 ****	0.3529 ns	1.221 ****	0.3755 ****	0.3571 ****
GC2 + 1/2 P1	0.9521 ns	0.27 ns	0.2987 ns	0.6218 ns	0.1962 ns	0.242 ns
Significance						
Cultivar (C)	ns	***	****	ns	ns	*
Fertilization (F)	****	***	****	****	****	****
Interaction						
F × C	**	****	**	**	**	*

Data are reported with p-values. *$p \leq 0.05$; **$p \leq 0.01$; ***$p \leq 0.001$; ****$p \leq 0.0001$. ns: non-significant. For each cultivar considered, statistically significant comparisons are according to the Dunnett test at $p = 0.05$, with respect to their own control.

Table S4. Mean values results related phosphate content data (n = 12). Data are related to different sampling stages, three related to leaf (tillering, stem elongation and kernel ripening) and one to kernel (milky ripe stage). Results of the Dunnett test were reported using the Control (C0) as referring sample within each cultivar.

Sources of variation	*1st year 1st sampling*	*1st year 2nd sampling*	*1st year 3rd sampling*	*1st year kernel*	*2nd year 1st sampling*	*2nd year 2nd sampling*	*2nd year 3rd sampling*	*2nd year kernel*
Anco Marzio								
C0	0.5154	1.904	1.34	1.516	2.056	2.44	2.28	1.708
P1	0.4236 ns	1.844 ns	1.186 ns	1.461 ns	1.142 ***	1.511 ****	0.9105 ****	2.089 *
P2	0.6196 ns	1.341 **	0.9494 *	1.7 ns	0.8853 ****	1.047 ****	0.952 ****	2.051 *
T1	0.2967 ns	1.458 *	1.11 ns	1.835 ns	0.7169 ****	1.698 ***	0.8282 ****	2.151 **
T2	0.9701 ***	1.667 ns	1.331 ns	2.195 ***	0.9727 ****	1.575 ****	1.518 ****	2.508 ****
GC1	0.4982 ns	2.165 ns	1.932 ***	2.015 *	1.15 ***	2.106 ns	1.625 ***	2.356 ****
GC2 + 1/2 P1	0.2921 ns	1.42 *	1.574 ns	2.035 *	0.7245 ****	1.468 ****	0.8354 ****	1.998 ns
Vespucci								
C0	0.5019	1.812	1.165	2.001	2.346	2.743	1.763	2.397
P1	0.7154 ns	0.7015 ****	1.185 ns	1.897 ns	1.735 *	1.242 ****	0.5832 ****	1.701 ****
P2	0.4841 ns	1.104 ***	1.048 ns	1.481 ***	1.567 **	1.167 ****	1.138 ***	1.61 ****
T1	0.4381 ns	0.9622 ****	1.246 ns	1.379 ****	0.9042 ****	1.747 ****	0.6672 ****	1.737 ****
T2	0.4773 ns	1.378 *	1.371 ns	1.329 ****	1.66 *	1.664 ****	1.067 ****	1.956 **
GC1	0.3766 ns	1.783 ns	1.591 *	1.712 ns	1.807 ns	2.773 ns	2.605 ****	1.77 ****
GC2 + 1/2 P1	0.3882 ns	0.895 ****	0.9571 ns	1.585 *	2.229 ns	1.194 ****	1.318 *	1.275 ****
Significance								
Cultivar (C)	ns	****	*	***	****	ns	ns	****
Fertilization (F)	***	****	****	*	****	****	****	****
Interaction								
F × C	***	**	**	****	**	**	****	****

Data are reported with *p*-values. *$p \leq 0.05$; **$p \leq 0.01$; ***$p \leq 0.001$; ****$p \leq 0.0001$. ns: non-significant. For each cultivar considered, statistically significant comparisons are according to the Dunnett test at $p = 0.05$, with respect to their own control.