

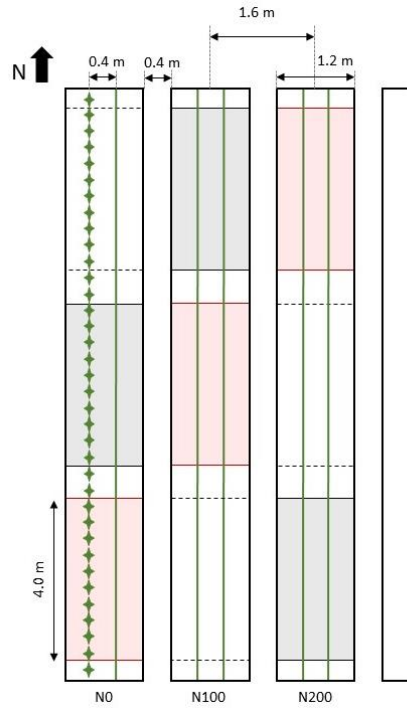
## Supplementary materials



**Figure S1.** Plant materials of red sweet pepper *Capsicum annuum* L., ecotype “Altino”, utilized for the “agronomic” experiments in 2017: A, phenotype named as 97; B, phenotype named as 99. The phenotypes were selected based on the keeper farmers’ local knowledge, starting from 2015.

**Table S1.** Mainly morphological characteristics of fruits of red sweet pepper, ecotype “Altino”: lenght (cm fruit<sup>-1</sup>), diameter (cm fruit<sup>-1</sup>), and fresh weight (FW, g fruit<sup>-1</sup>). Means ± standard errors (n=100) are reported. Phenotypes indicated as 97 and 99 are showed in Figure S1.

Phenotype	Lenght (cm fruit <sup>-1</sup> )	Diameter (cm fruit <sup>-1</sup> )	FW (g fruit <sup>-1</sup> )
97	13.7 ± 1.6	2.7 ± 0.4	23.1 ± 1.7
99	15.6 ± 1.8	2.7 ± 0.2	22.0 ± 2.1



**Figure S2.** Layout of a single repetition of the experimental field setted on the Research Centre for Vegetable and Ornamental Crops, Council for Agricultural Research and Economics (CREA-OF), located in Monsampolo del Tronto (AP), Italy, in 2017. Experimental design (split-plot design) consisted of nine sub-plots obtained by splitting the main plots into three areas of equal size. The three N treatments represented the main plots (0\_N: 0 Kg N ha<sup>-1</sup>; 100\_M: 100 kg N ha<sup>-1</sup>; 200\_N: 200 kg N ha<sup>-1</sup>); the three shade treatments represented the sub-plots (RN=red photo-selective net, depicted as red rectangle; BN=black photo-selective net, depicted as grey rectangle; Control=unshaded; depicted as white rectangle). Green symbols represent pepper plants. This layout was repeated 3 times with a different randomization. Two adjacent experiments were conducted (Exp\_1 and Exp\_2).

**Table S2.** Principal differences as recorded under red (RN) and black (BN) photoselective nets with respect to unshaded control (Control) in 2017. DQI: irradiance total daily quantum input; PAR: photosynthetically active radiation; DAT: days after transplanting; RH: relative humidity. DQI, % shading, mean temperatures and RH data are averaged over pepper growing cycle; % scattering represents the means of 3 independent measurements recorded during crop cycle.

	Light treatment		
	Control	RN	BN
DQI (mol m <sup>-2</sup> day <sup>-1</sup> )	45.6	34.9	27.3
Shading in the PAR range (%)	-	23.8	40.4
Scattering in the PAR range (%)	-	15.4	12.1
Daytime mean temperatures (°C)	30.0	30.5	29.7
Night mean temperatures (°C)	19.9	19.8	19.5
RH (%)	58.4	57.8	59.6
Beginning of fruit formation (DAT)	14	17	16