

**Supplementary Table S1.** Mean temperature and precipitation during field experiments (WULS meteorological Station, Warsaw, Poland, 52°09'37.37''N 21°03'11.92''E).

Month	Temperature (°C)			Precipitation (mm)		
	2021	2022	Multiyear	2021	2022	Multiyear
June	20.8	20.2	18.0	73.3	29.3	70.3
July	22.4	19.9	20.1	201.1	103.7	88.2
August	17.6	22.1	19.5	203.1	34.4	65.2
September	14.1	12.6	14.4	42.0	50.6	56.9

**Supplementary Table S2.** Average nitrate contents in fruit flesh, average values of yield-related traits, and fruit dimensions for four cultivars of winter squash (*Cucurbita maxima* Duchesne) in relation to three doses of nitrogen fertilization for field experiment conducted in 2021. Letters indicate homogenous group;  $p < 0.05$ .

Trait	Nitrogen Dose	Cultivar								Mean	
		Bambino		Otylia F <sub>1</sub>		Justynka F <sub>1</sub>		Mammoth Gold			
Nitrate content (mg/kg)	100%	272.0	cd	484.0	e	65.0	ab	402.0	de	305.0	c
	50%	73.0	ab	85.0	ab	4.0	a	196.0	bc	89.0	a
	30%	62.0	ab	311.0	cd	13.0	a	186.0	bc	143.0	b
	mean	135.0	b	293.0	c	27.0	a	261.0	c	-	
Fruit yield (kg/100m <sup>2</sup> )	100%	258.1	ab	440.5	cd	255.8	ab	494.0	de	362.1	a
	50%	230.0	a	342.9	bc	238.1	ab	528.6	e	334.9	a
	30%	204.4	a	400.5	cd	197.1	a	383.6	c	296.4	b
	mean	230.8	a	394.6	b	230.3	a	468.7	c	-	
Fruit weight (kg)	100%	4.4	b	6.8	cd	1.9	a	7.9	d	5.3	a
	50%	5.0	bc	6.6	cd	2.2	a	9.8	f	5.9	b
	30%	4.2	b	7.4	cd	1.9	a	6.3	c	4.9	a
	mean	4.5	b	6.9	c	2.0	a	7.4	c	-	
Fruit number (n)	100%	1.3	ab	1.4	c	2.8	e	1.3	bc	1.7	b
	50%	1.0	a	1.1	ab	2.1	d	1.2	ab	1.4	a
	30%	1.0	a	1.1	ab	2.1	d	1.2	ab	1.4	a
	mean	1.1	a	1.2	ab	2.4	c	1.3	b	-	
Fruit length (cm)	100%	20.8	bc	21.0	bc	15.4	a	27.8	f	21.2	a
	50%	19.6	b	23.9	de	15.2	a	32.6	g	22.8	b
	30%	19.1	b	23.1	cd	13.9	a	26.3	ef	20.6	a
	mean	19.8	b	22.7	c	14.8	a	28.9	d	-	
Fruit diameter (cm)	100%	25.9	bc	28.1	cd	17.9	a	28.6	cd	25.1	a
	50%	27.3	bc	29.7	e	19.1	a	31.3	c	26.8	b
	30%	24.9	b	29.3	d	18.2	a	27.3	bc	24.9	a
	mean	26.0	b	29.0	c	18.4	a	29.0	c	-	
Fruit flesh thickness (cm)	100%	4.4	b	5.1	cd	3.2	a	4.3	b	4.2	a
	50%	4.7	bc	5.8	e	3.4	a	5.4	d	4.8	b
	30%	4.2	b	5.2	d	3.6	a	4.4	b	4.4	a
	mean	4.4	b	5.4	c	3.4	a	4.7	b	-	

**Supplementary Table S3.** Average nitrate contents in fruit flesh, average values of yield-related traits, and fruit dimensions for four cultivars of winter squash (*Cucurbita maxima* Duchesne) in relation to three doses of nitrogen fertilization for experiment conducted in 2022. Letters indicate homogenous group;  $p < 0.05$ .

Trait	Nitrogen Dose	Cultivar								Mean	
		Bambino		Otylia F <sub>1</sub>		Justynka F <sub>1</sub>		Mammoth Gold			
Nitrate content (mg/kg)	100%	526.7	de	751.5	e	356.5	cd	335.6	bc	492.6	b
	50%	310.8	ab	270.3	ab	94.0	ab	365.9	cd	260.2	a
	30%	90.9	a	145.3	ab	101.3	ab	179.6	ab	129.3	a
	mean	309.5	b	389.0	b	183.9	a	293.7	b	-	
Fruit yield (kg/100m <sup>2</sup> )	100%	228.8	b	339.1	cd	146.0	a	353.2	ef	266.8	b
	50%	230.6	b	333.2	cd	152.3	a	385.8	f	275.5	b
	30%	202.7	b	293.7	c	130.4	a	313.6	cd	235.1	a
	mean	220.7	b	322.0	c	142.9	a	350.9	d	-	
Fruit weight (kg)	100%	4.9	bc	7.7	ef	1.6	a	7.6	ef	5.4	b
	50%	5.1	c	7.5	e	1.5	a	8.3	f	5.6	b
	30%	4.3	b	6.5	d	1.4	a	6.5	d	4.7	a
	mean	4.8	b	7.2	c	1.5	a	7.4	c	-	
Fruit number (n)	100%	1.0	a	1.0	a	2.2	c	1.1	a	1.3	a
	50%	1.1	a	1.0	a	2.1	b	1.0	a	1.3	a
	30%	1.1	a	1.1	a	2.1	b	1.1	a	1.3	a
	mean	1.1	a	1.0	a	2.1	b	1.1	a	-	
Fruit length (cm)	100%	20.6	b	23.1	bc	12.2	a	26.7	cd	20.6	a
	50%	20.5	b	24.4	c	13.3	a	28.4	d	21.7	a
	30%	20.1	b	23.0	bc	13.0	a	26.1	cd	20.6	a
	mean	20.4	b	23.5	c	12.8	a	27.1	d	-	
Fruit diameter (cm)	100%	26.3	bc	29.5	de	17.3	a	29.0	cd	25.5	b
	50%	26.7	bc	30.4	e	17.7	a	31.0	e	26.4	b
	30%	23.9	b	27.1	cd	17.0	a	28.7	cd	24.2	a
	mean	25.7	b	29.0	c	17.3	a	29.6	c	-	
Fruit flesh thickness (cm)	100%	3.7	ab	6.4	d	3.1	a	3.8	ab	4.3	a
	50%	3.8	ab	6.2	cd	3.3	a	4.3	b	4.4	a
	30%	3.8	ab	5.6	c	3.1	a	4.1	b	4.2	a
	mean	3.8	ab	6.1	c	3.2	a	4.1	b	-	

**Supplementary Table S4.** Average dry matter contents in fruit flesh for four cultivars of winter squash (*Cucurbita maxima* Duchesne) in field experiments conducted in 2021 and 2022.

Cultivar	Dry Matter Content (g/100 g FW)	
	2021	2022
Bambino	8.2	8.1
Otylia F <sub>1</sub>	8.6	9.6
Justynka F <sub>1</sub>	17.0	20.2
Mammoth Gold	6.7	6.5