



INFLUENCE OF SEED RATE AND ROW SPACE ON WINTER WHEAT YIELD AND GRAIN QUALITY

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Introduction

Grain yield and quality of winter wheat (*Triticum aestivum* L.) depend upon the interaction of environment and genotype. An important element of agricultural technology for all crops is the correct sowing rate.

The aim of research

of investigations was to evaluate the influence of seed rate and distance between rows winter wheat yield and grain quality.

Materials and methods

- ✓ The field trials with four winter wheat varieties ‘Edvins’, ‘Brencis’, ‘Talsis’ (Latvia) and standard variety ‘Skagen’ were set up at Institute of Agricultural Resources and Economics during 2017–2019.
- ✓ Fertilizers and plant protection products were used in accordance with commercial practices and rates common to the area.
- ✓ The varieties were grown on plots 20 m² in four replications.
- ✓ Sowing rates were **500 germinating kernels m⁻²** and in other treatment **reduced by 40%** (300 germinating kernels m⁻²), as well as in the treatment with reduced sowing rate, the **distance between rows was**
 - **12 cm** in treatment 1 and
 - **25 cm** in treatment 2 (T).
- ✓ Wintering conditions in both years were satisfactory and estimation after wheat plant vegetation renewal was 7 to 9 points (on a scale of 1–9; 1 – low).
- ✓ Grain yield assessed from all plot and corrected for dry matter 14%. Determine standard deviation used Microsoft excel function STDEV.S and influence of faktors (η%).
- ✓ Protein content analysed by express method using *Infratec Nova 6* (Denmark, product line 91748300). Determine standard deviation used Microsoft excel function STDEV.S

Results

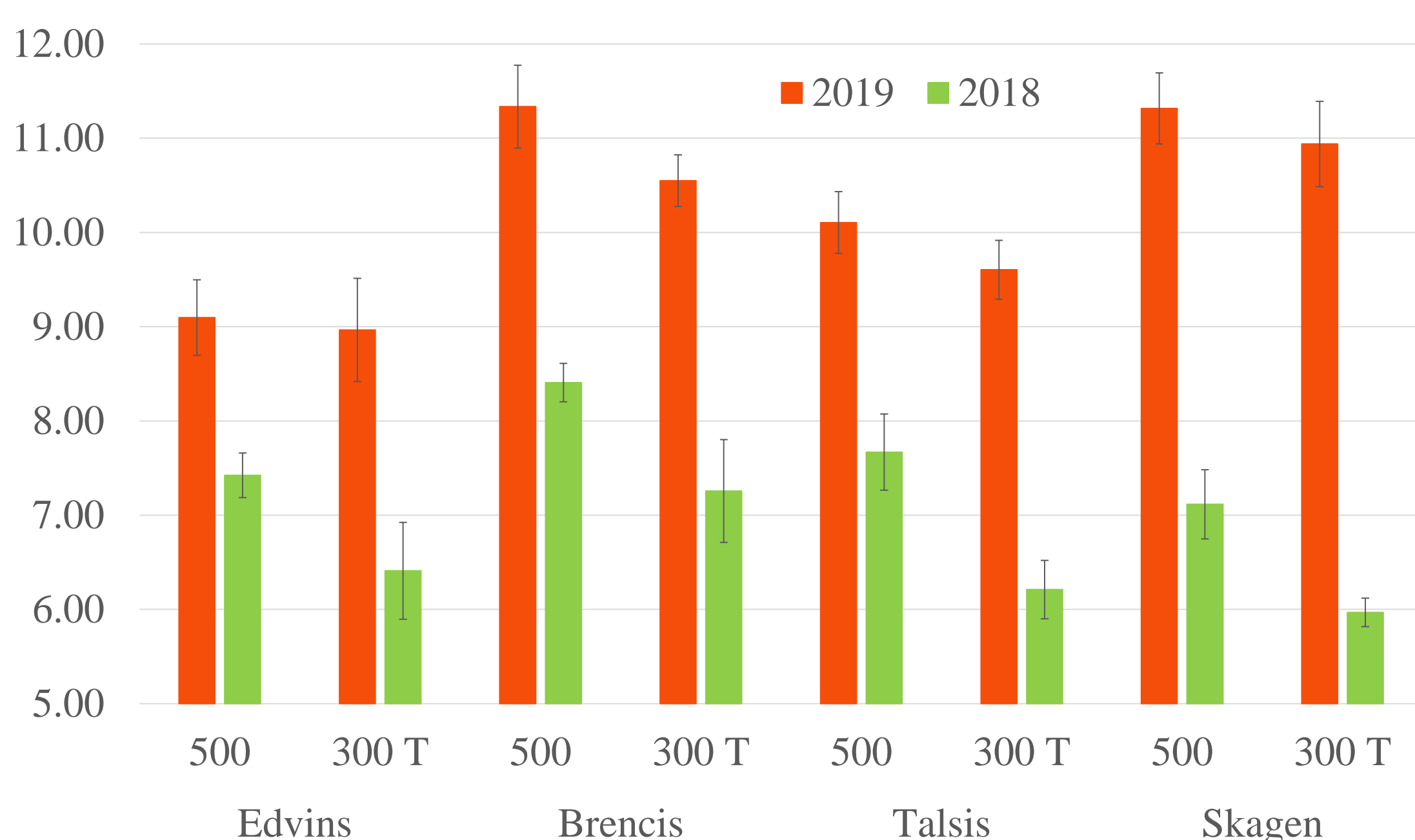


Figure 1. Winter wheat grain yield, t ha⁻¹

Table 1.

The influence of factors, η%, 2018-2019, F>F0.05

Faktors	Grain yield	
	2019	2018
variety – factor A	79.7	32.7
sowing rates – factor B	5.5	51.7
interaction AB	1.5	1
effect of unexplored factors	11.6	10.8

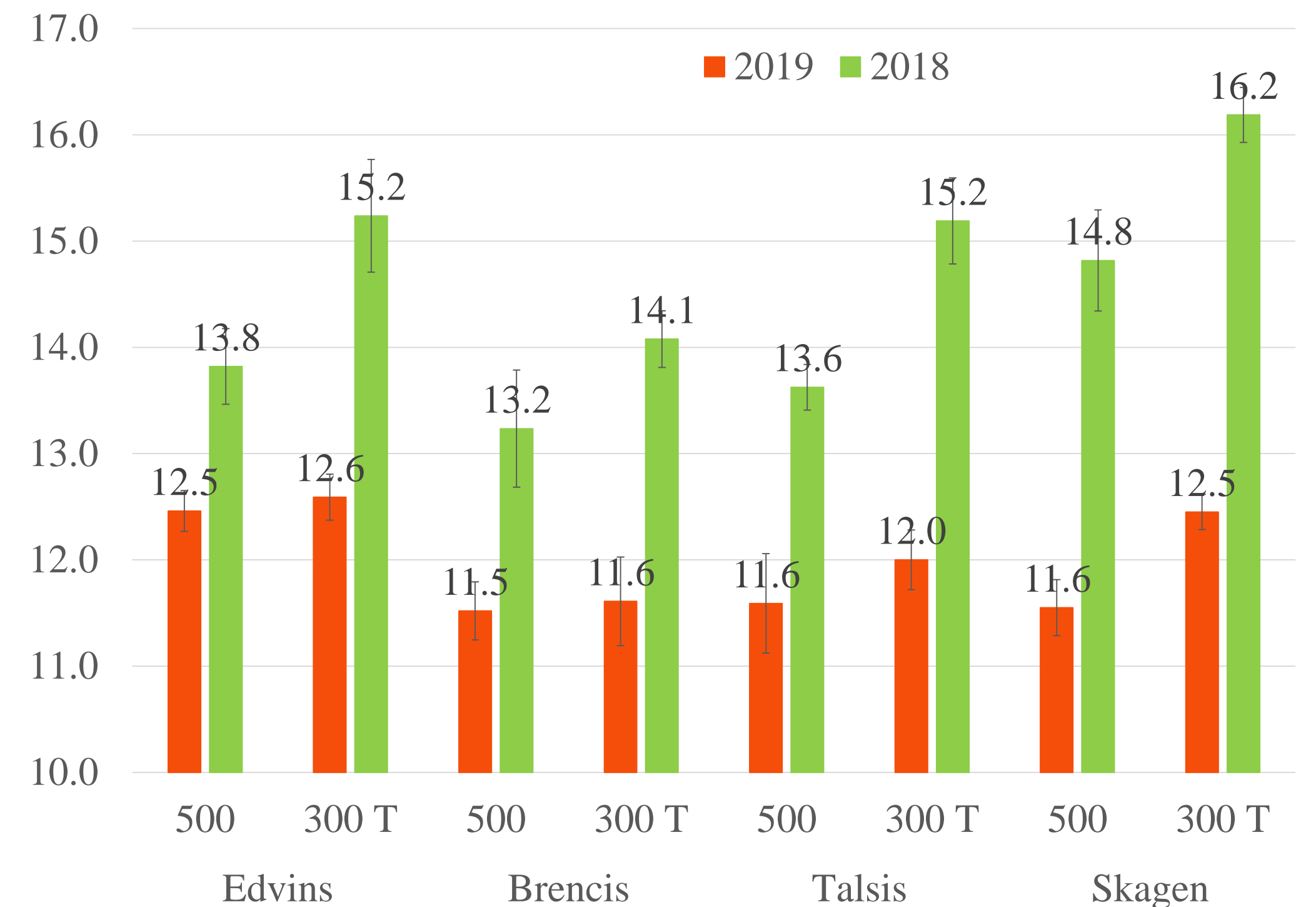


Figure 1. Winter wheat protein content, %

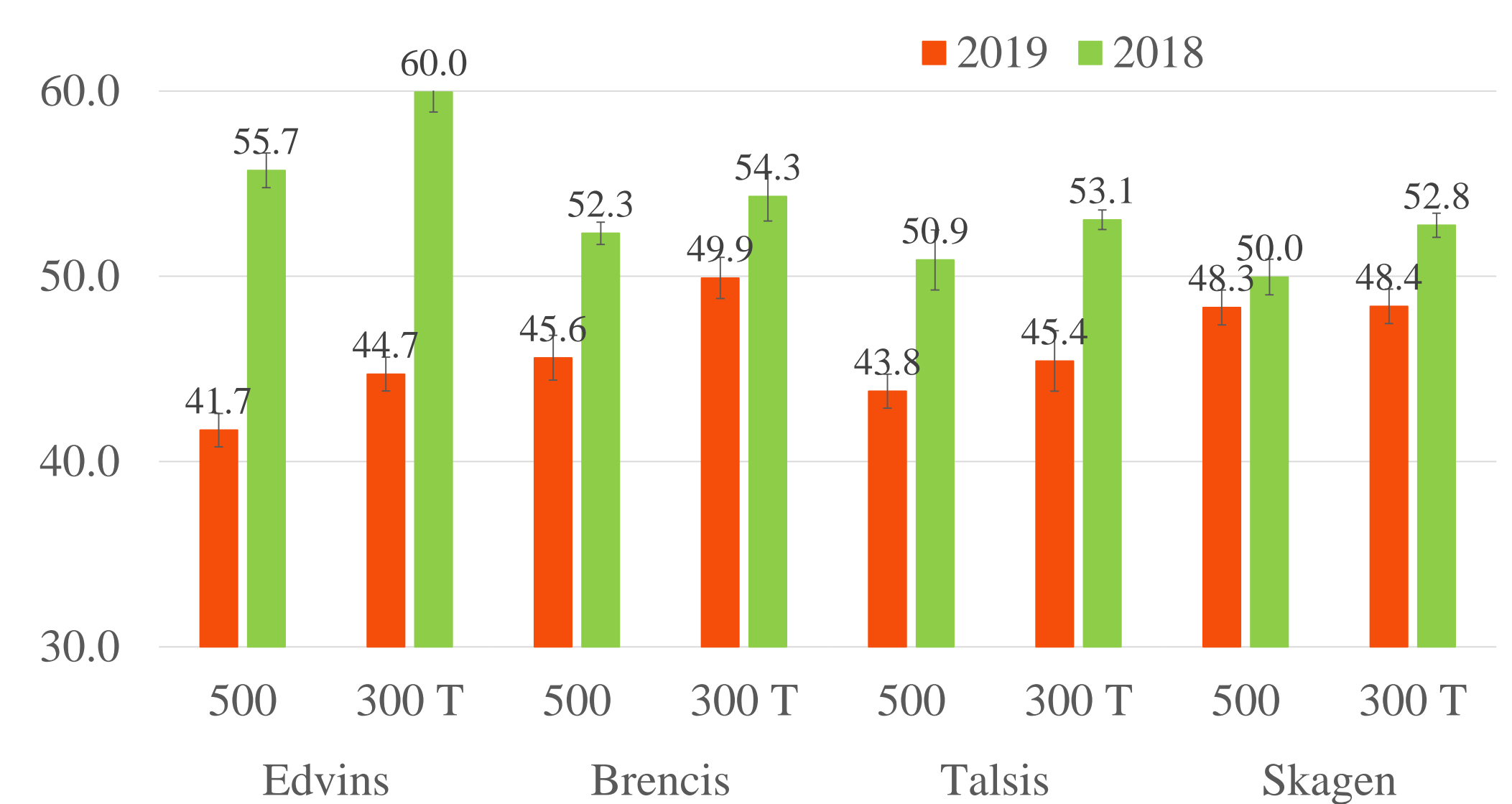


Figure 2. Winter wheat TKW, g

Conclusion

- ✓ The results of the experiment conformed winter wheat varieties characterized to high productive tillering capacity at the optimal sowing time with the favourable conditions for plant development can reduce the sowing rate by 30–40%.
- ✓ In average 2017/2018–2018/2019 TKW was significantly higher (p<0.05) for all varieties using reduced sowing rates and increasing row width (25 cm).
- ✓ In 2019 using reduced sowing rate and row width 25 cm protein content significantly higher was only for varieties ‘Talsis’ 115.9–120.0 and ‘Skagen’ 115.8–124.8 mg kg⁻¹.

Acknowledgements

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