

BAKING QUALITY OF WHEAT IN ORGANIC FARMING



ecobreed
IMPROVING CROPS

P. Horčíčka O. Veškrna, S. Ježek, and T. Sedláček²

¹ Selgen, Joint-stock Company, Stupice 24, 25084 Sibrina, Czech Republic

² Research Centre SELTON, Ltd.

Introduction

Organic farming is a farming system characterised by a limited nutrient content and the absence of nitrogen application. Cultivars should be able to perform at low levels of organic fertilizers. Baking quality was evaluated in conventional and organic farming.

Materials and Methods

Locations: Stupice (ST), Uhřetěves (UR)

Pre-crop: legumes (2020 UR potatoes)

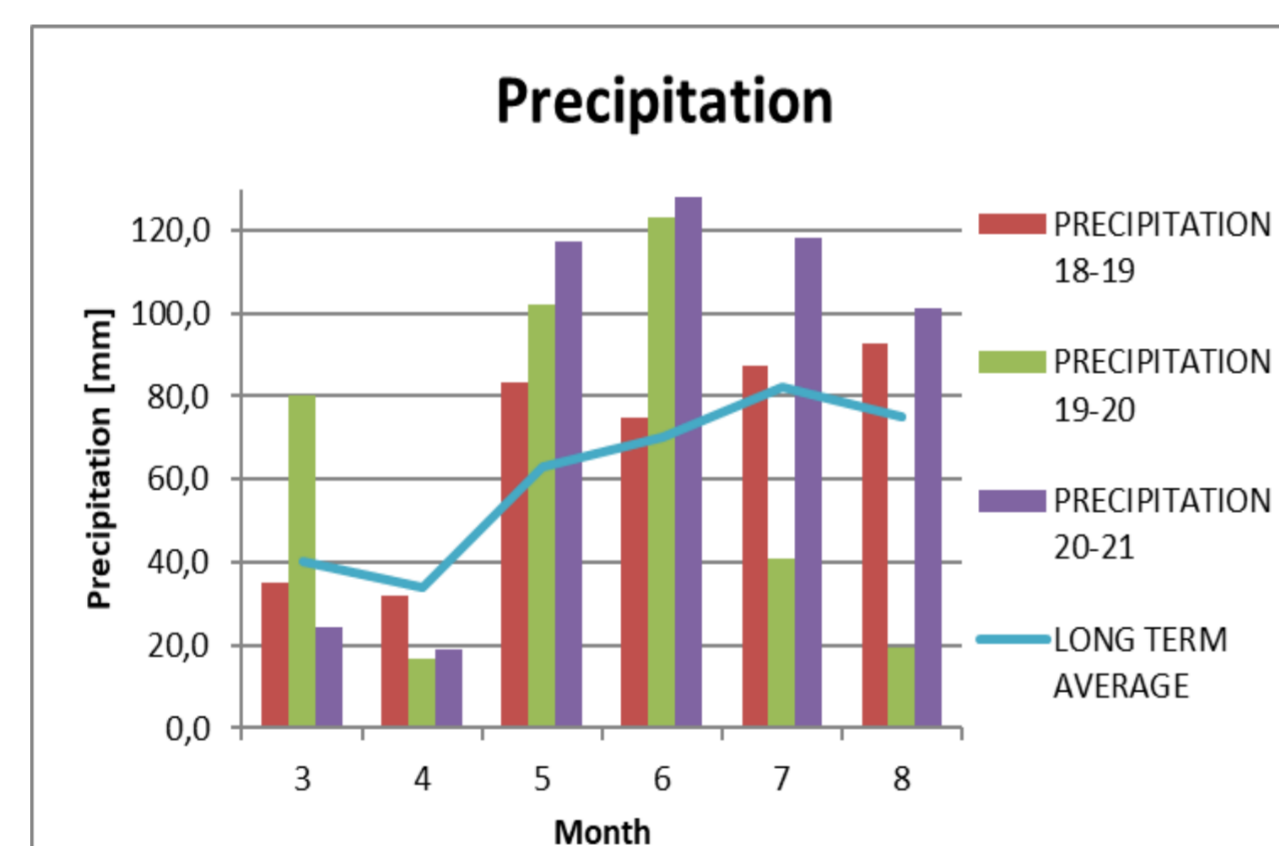
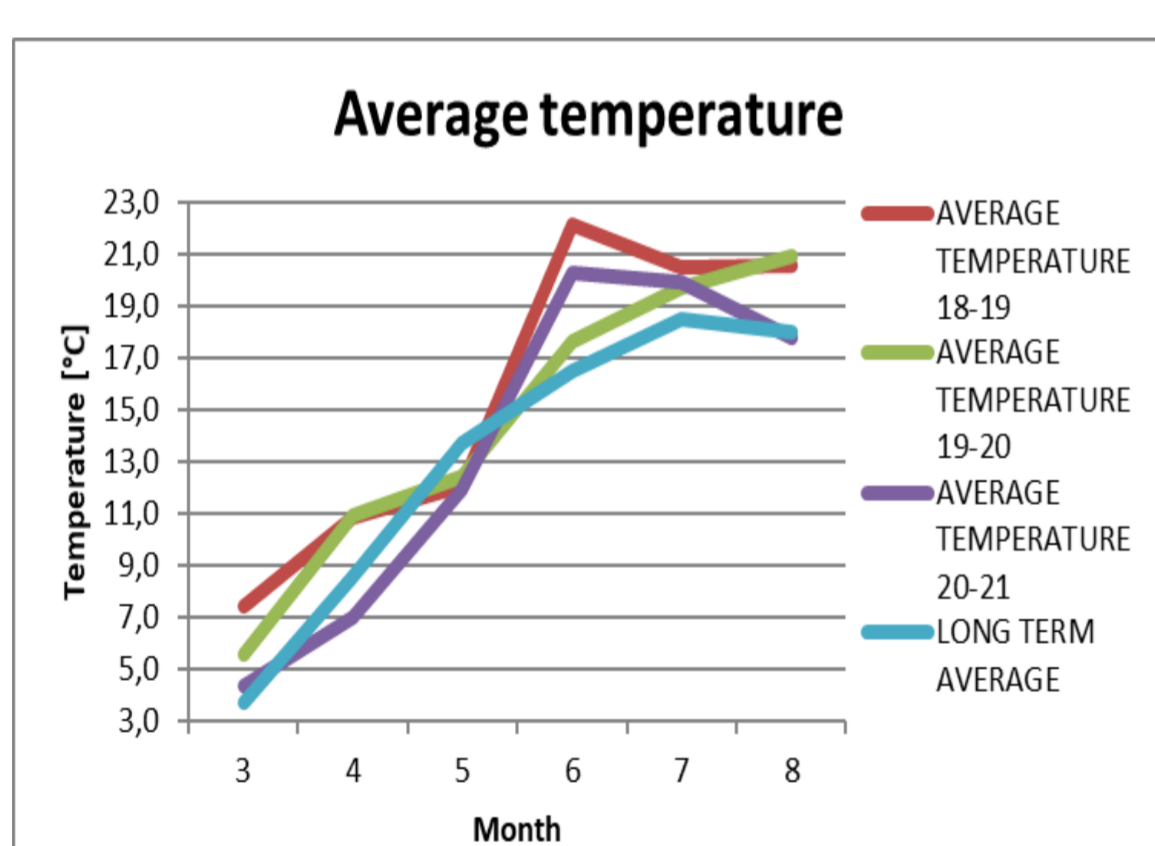
Cultivations:

Conventional: 180 kg N, herbicide, seed treatment

Intensive: 180 kg N, herbicide, seed treatment, fungicide

Organic: harrowing

Plant material: 20 varieties of winter wheats



Results

Winter wheat trials (2018-21)

year	site	cultivation	yield	protein	gluten	SDS	SW	FN	bread
			t/ha	%	%	ml	kg/hl	s	ml
2019	ST	conventional	12,5	14,1	33,8	76,1	80,5	334	392
2020	ST	conventional	10,6	14,0	35,8	78,2	81,9	382	411
2021	ST	conventional	9,1	15,5	44,7	82,2	74,2	281	
		average	10,7	14,5	38,1	78,8	78,9	332,3	401,5
		CV	13,2	4,7	12,4	3,2	4,2	12,4	
2019	ST	intensive	13,3	12,8	30,1	73,1	80,4	374	393
2020	ST	intensive	12,3	14,2	38,2	76,6	81,8	379	407
2021	ST	intensive	9,5	15,2	44,7	82,5	74,4	262	
		average	11,7	14,1	37,7	77,4	78,9	338,3	400,0
		CV	13,6	7,0	15,1	5,0	4,1	16,0	
2019	UR	organic	7,5	14,4	32,6	77,1	80,4	436	412
2020	UR	organic	5,1	9,5	19,6	59,1	79,9	278	315
2021	UR	organic	8,1	13,5	35,1	79,9	75,5	272	
		average	6,9	12,5	29,1	72,0	78,6	328,7	363,5
		CV	19,1	17,0	23,3	12,8	2,8	23,1	

- The yield in conventional cultivation was 35% higher than in organic farming.
- The great influence of the pre-crop on the grain quality during organic farming was proved - potatoes affected grain yield and protein content.
- It is necessary to take into account the large effect of the pre-crop in organic farming.

Quality test:

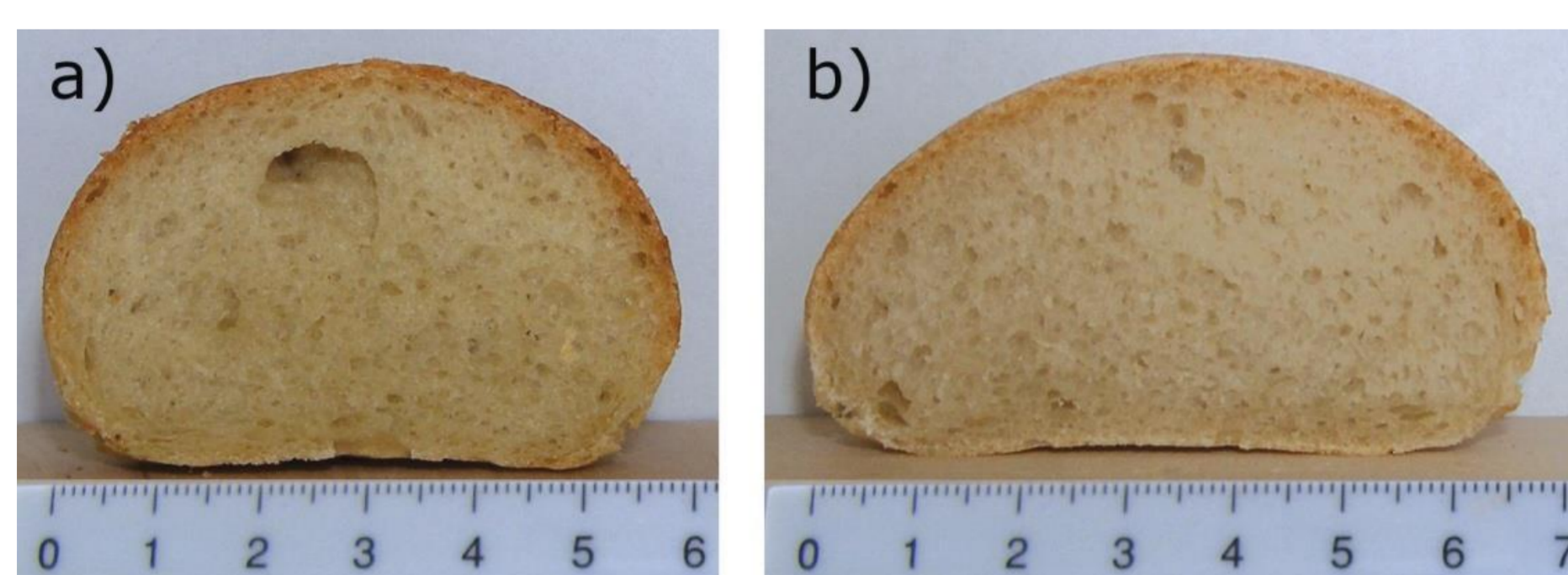
Near Infra-Red (NIR) Spectrometer (%N, SW)

Hagberg Falling Number (FN)

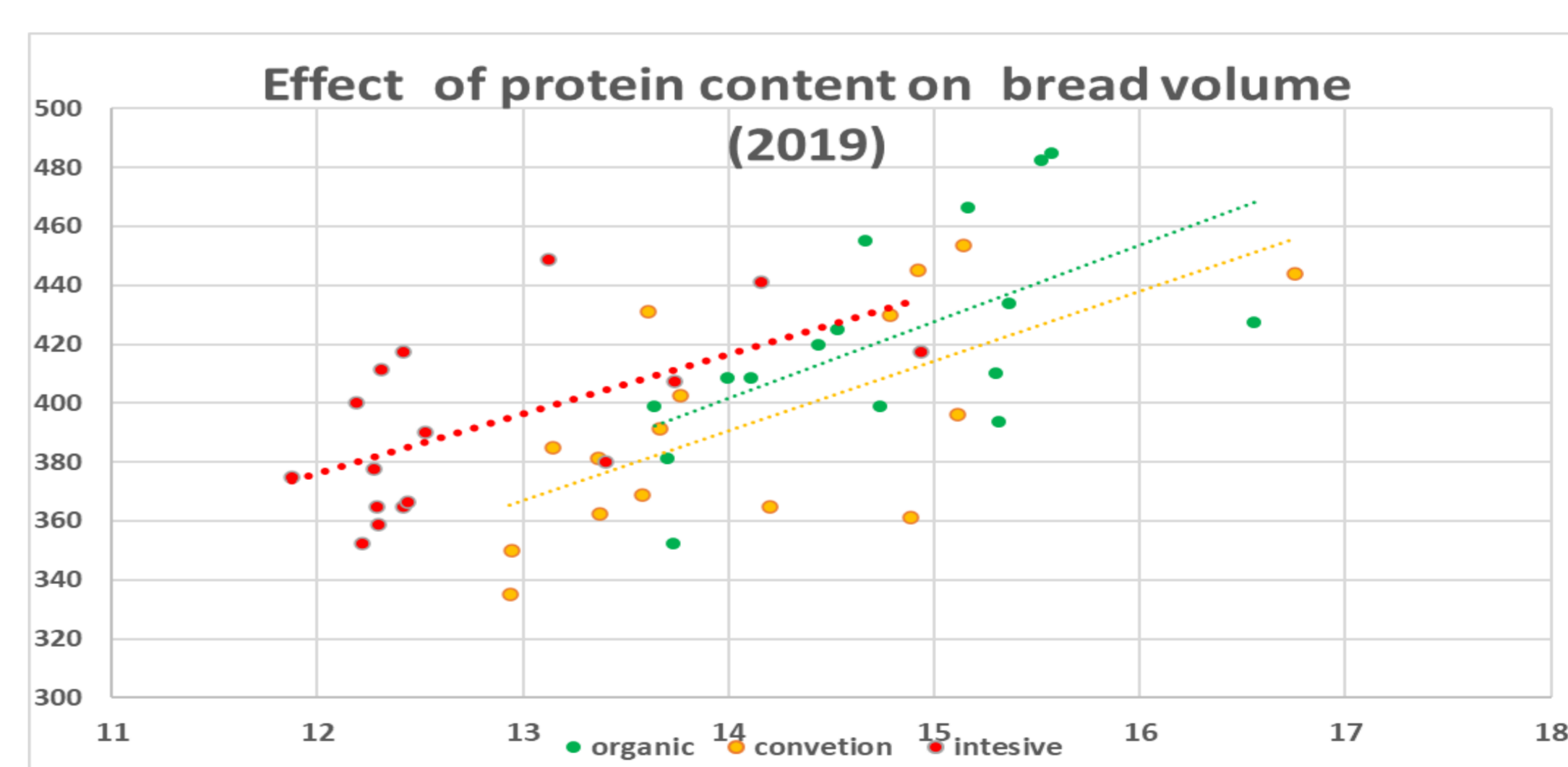
Glutomatic (Wet Gluten)

SDS test

Mini RMT (bread volume) 2021 in progress



Mini RMT



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Corresponding author:

Pavel Horčíčka

horcicka@selgen.cz



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