

# Agronomic Test in Bosnia and Herzegovina

Agronomic testing,  
FAFS, B&H

**Interreg**  
*Mediterranean*



RE-LIVE WASTE

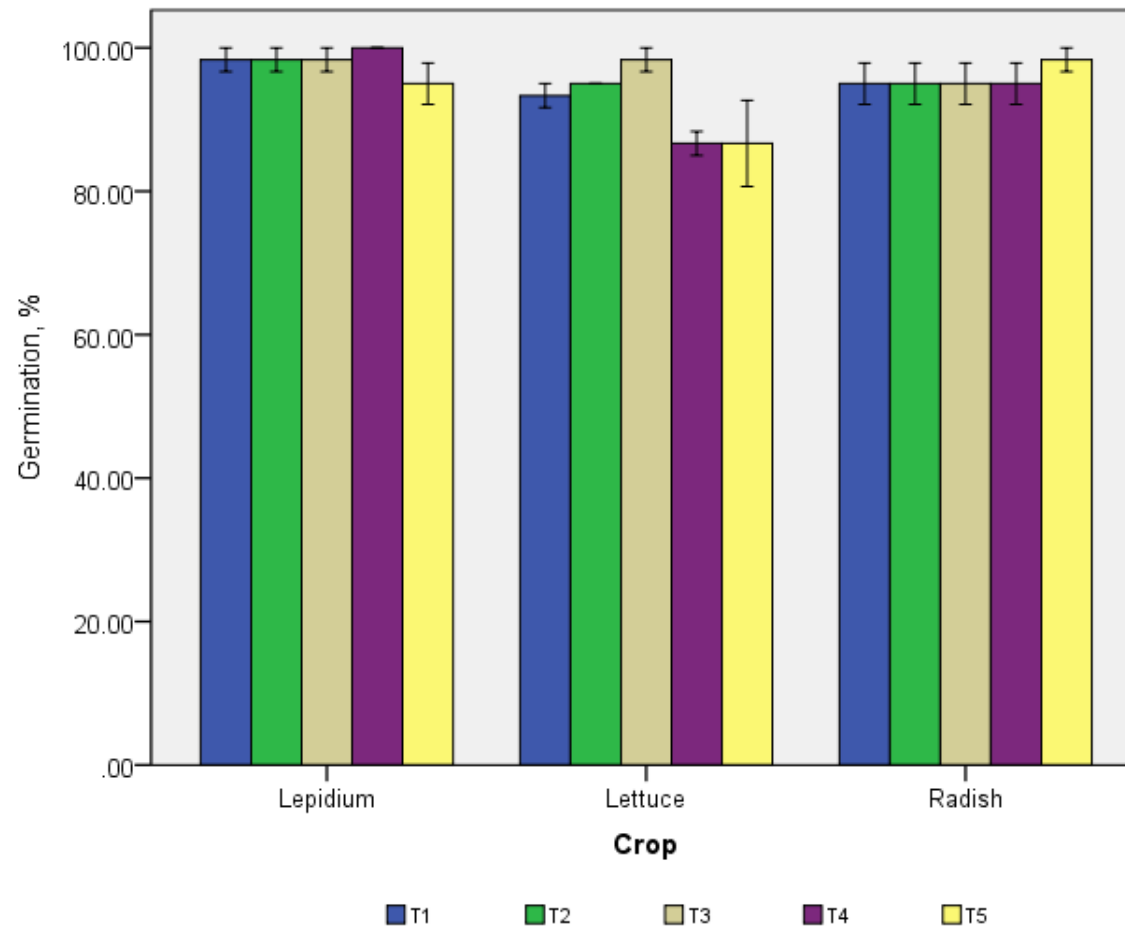
Project co-financed by the European  
Regional Development Fund

# Results obtained: significant agronomic value

The agronomic protocol determines that the struvite produced has an agronomic interest. More specifically, the addition of struvite to plants under controlled conditions:

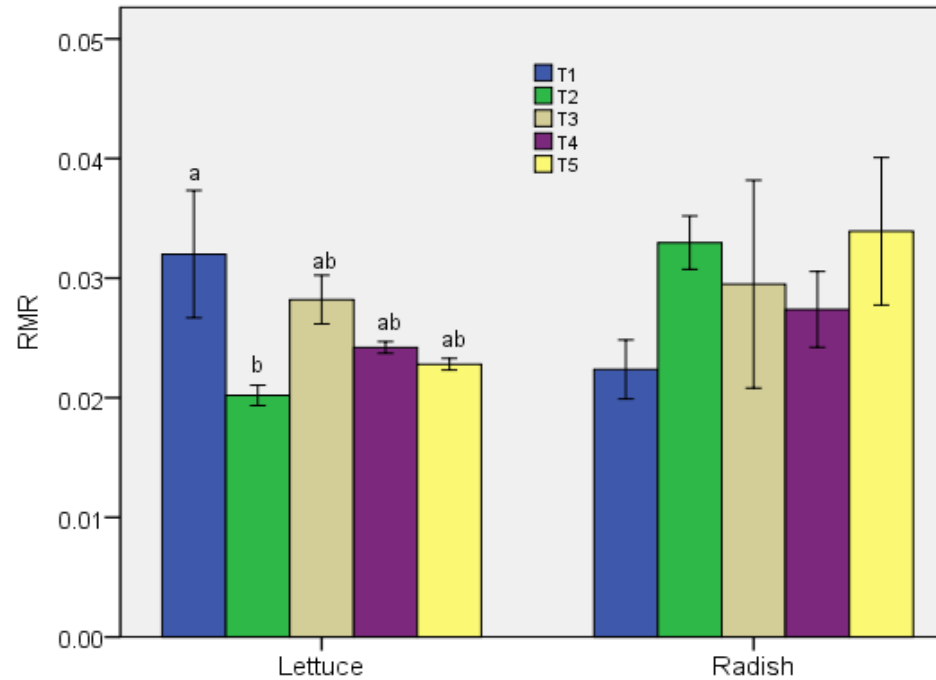
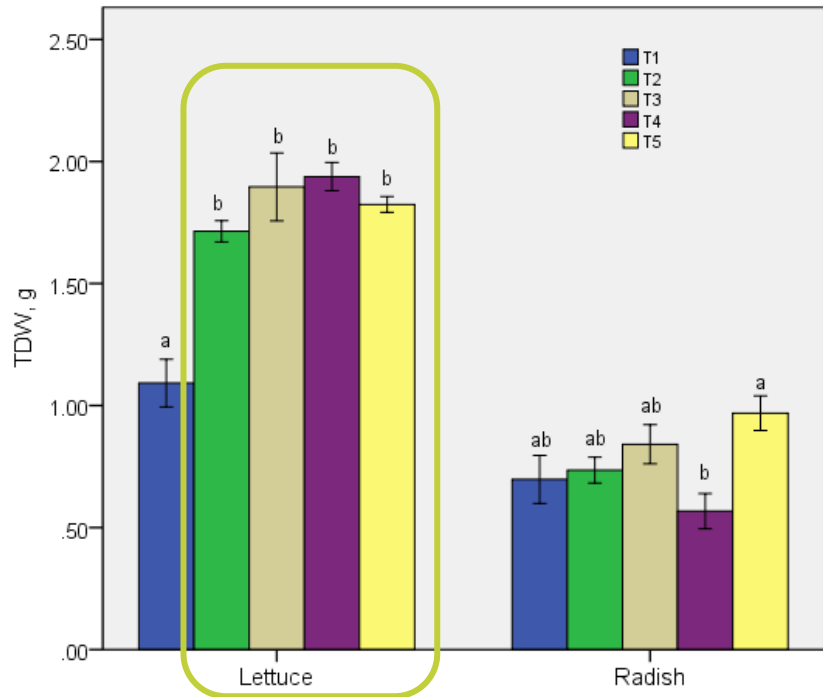
- Results in same germination of seeds
- Final emergency rate of lettuce was similar although treatments with struvite have tendency to reach plateau much earlier than other treatments
- Similar physical/morphological characteristics as commercial fertilizers
- Improved phosphorus content in lettuce shoot
- Better shelf life of crops

# Germination, % of lepidium, lettuce and radish seeds



Seed germination (%) grown on different growing media. The error bars represent standard error of mean. Differences between treatments in each crop are not significant ( $p > 0,05$ )

# Physical/morphological characteristics



a,b,c Values in same colon with different letter in subscript differ at significant level of  $p < 0.05$  (Tukey test)

Total dry weight (TDW), g and root mass ratio (RMR) of lettuce (A) and radish (B) grown on different growing media. The error bars represent standard error of mean.

# Chemical characteristics

Mineral content in fresh biomass of lettuce (mg/100g) grown in different growing media. Values are expressed as mean of n=3 with standard error of mean.

Treatment	Cu	Zn	Mn	Fe	K	Ca	Mg	P
T1	0.094±0.002	0.280±0.006	0.890±0.029	0.328±0.017	108.11±6.75 <sup>a</sup>	99.55±7.73 <sup>b</sup>	15.55±1.46	16.70±0.29 <sup>b</sup>
T2	0.102±0.008	0.319±0.024	0.965±0.074	0.361±0.012	147.73±5.96 <sup>c</sup>	118.12±2.43 <sup>ab</sup>	17.42±0.60	19.46±0.08 <sup>a</sup>
T3	0.085±0.007	0.319±0.034	0.885±0.077	0.345±0.032	125.62±3.80 <sup>b</sup>	129.85±2.69 <sup>a</sup>	17.30±1.15	19.83±0.32 <sup>ac</sup>
T4	0.082±0.002	0.354±0.023	1.022±0.046	0.365±0.002	138.61±5.96 <sup>bc</sup>	120.37±6.96 <sup>ab</sup>	17.84±0.85	21.87±0.99 <sup>ac</sup>
T5	0.079±0.004	0.331±0.020	0.884±0.106	0.302±0.009	139.29±3.71 <sup>bc</sup>	119.61±7.52 <sup>ab</sup>	17.86±0.34	21.89±0.21 <sup>c</sup>
p	0.104	0.344	0.600	0.067	0.001	0.030	0.109	0.000

<sup>a,b,c</sup> Values in same colon with different letter in subscript differ at significant level of p<0.05 (Tukey test)

# Biochemical characteristics

Chlorophil content in **lettuce** leaves at different stage of growing, mg/100 g of FW

Treatment	10 <sup>th</sup> day		20 <sup>th</sup> day		30 <sup>th</sup> day	
	Chlo A	Chlo B	Chlo A	Chlo B	Chlo A	Chlo B
T1	18.30±0.42	10.44±1.01	23.17±2.39	13.05±3.69	26.70±4.01	7.83±1.34
T2	17.05±0.23	12.17±0.15	25.16±2.17	16.94±2.05	23.46±0.85	6.66±0.52
T3	17.57±1.60	10.65±0.41	30.22±1.84	20.59±3.68	22.43±1.81	7.08±0.22
T4	20.60±0.41	9.84±0.88	30.44±4.18	14.46±1.66	24.38±2.26	7.01±0.52
T5	20.22±0.68	9.59±0.48	25.68±2.54	10.19±2.02	28.87±1.31	8.40±0.34
p	0.053	0.128	0.305	0.165	0.347	0.453

## Total carotenoids (TC), total phenolic (TPC), total flavonoids (TF) and malondialdehyde (MDA) content in leaves of lettuce after 30 days

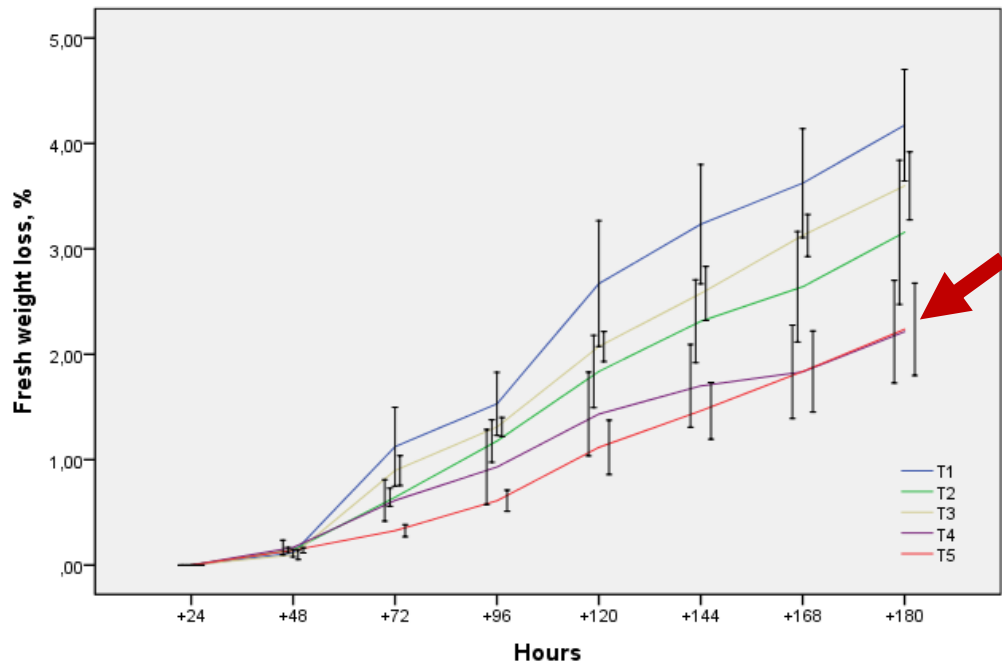
Treatment	TC, mg 100 g <sup>-1</sup>	TPC, mg g <sup>-1</sup>	TF, mg eq. GA g <sup>-1</sup>	MDA, nmol g <sup>-1</sup>
T1	7.49±0.72 <sup>a</sup>	0.46±0.01	0.18±0.03 <sup>b</sup>	20.50±1.75 <sup>b</sup>
T2	5.67±0.25 <sup>ab</sup>	0.47±0.06	0.15±0.01 <sup>b</sup>	14.67±1.52 <sup>bc</sup>
T3	5.26±0.49 <sup>b</sup>	0.52±0.02	0.30±0.03 <sup>ab</sup>	15.58±0.65 <sup>bc</sup>
T4	5.59±0.47 <sup>ab</sup>	0.59±0.04	0.38±0.71 <sup>a</sup>	13.5±1.81 <sup>ac</sup>
T5	7.26±0.41 <sup>ab</sup>	0.55±0.08	0.19±0.03 <sup>b</sup>	7.92±1.17 <sup>a</sup>
p	0.025	0.340	0.009	0.002

<sup>a,b,c</sup> Values in same colon with different letter in subscript differ at significant level of  $p < 0.05$  (Tukey test)

# Shelf life

Accumulated fresh weight loss of lettuce (left) and radish (right) shoots. Error bars represent one standard error of mean (SE)

## Lettuce



## Radish

