



# TRansition paths to sUstainable legume-based systems in Europe

András Bittsánszky - András Tóth - Csaba B. Illés

Indere Institute for Food System Research and Innovation Ltd.

Szent István University, Department of Business Economics and Management

## Legumes in schools

---

11 September 2018





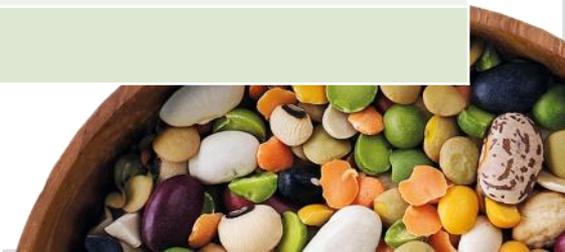
Source:MTI





## Common legume dishes in Hungarian school catering

Legume ingredients	Dishes
Green pea	Green pea soup
	Green pea stew
	To supplement rice, ragout etc.
Green bean	Green bean soup
	Green bean stew
Kidney bean	Soup with meat
	Kidney bean stew
Lentil	Lentil soup
	Lentil stew
Yellow pea	Yellow pea soup
	Yellow pea stew





Source of images: National Food Chain Safety Office





## Regulation in Hungary

*Aim: Provide healthy and safe food for all ages*

***Regulation No: 37/2014. (IV. 30.), Ministry of Human Capacities***

Dried legumes must serve at least once in every period of two weeks.





## The problem

The aim is to serve healthy and nutritious food for kids

The nutriments are carefully calculated





## Food preference survey based on real consumption

- More than 80 primary and secondary school
- More than 9000 consumer (students and teachers)





## Food preference survey based on real consumption

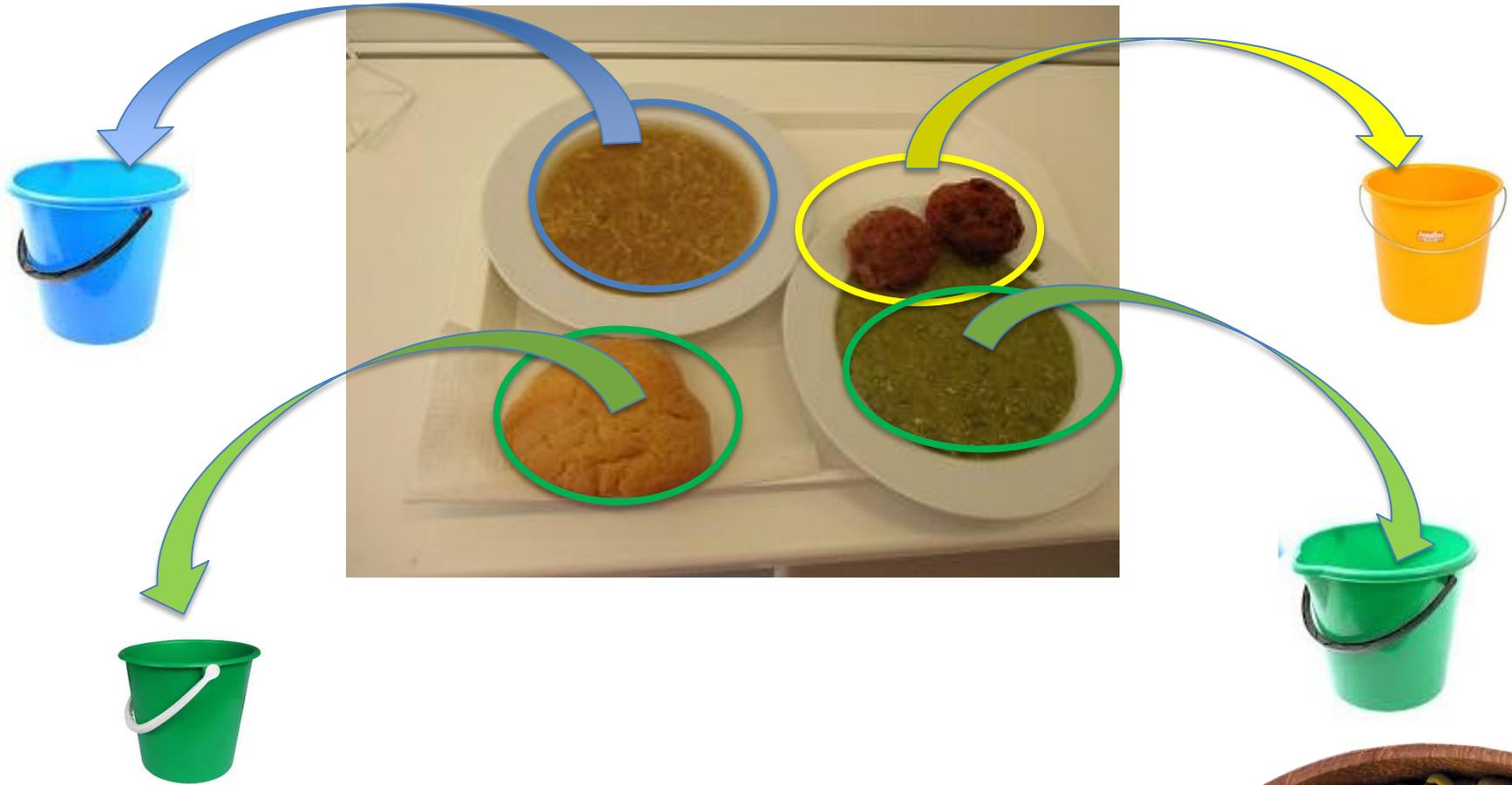
- Weighing served food
- Weighing returned food according to ingredients



# Waste collection

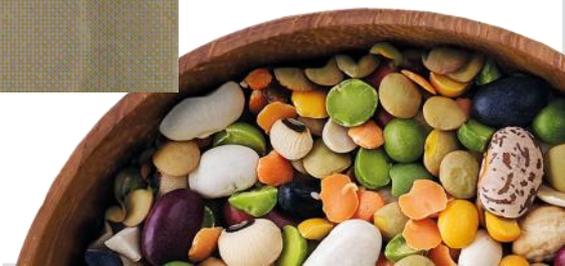


# Waste collection





## Waste collection





# Legume consumption in schools

**24 Schools**

**2 329 Consumers**





## Legume consumption in schools

Served food: **721 kg**

Legume ingredient: **196 kg**

Consumed food: **474 kg**

Consumed legumes: **135 kg**





## Legume consumption in schools pro person

Served food: **310 g**

Legume ingredient: **84 g**

Consumed food: **204 g**

Consumed legumes: **58 g**



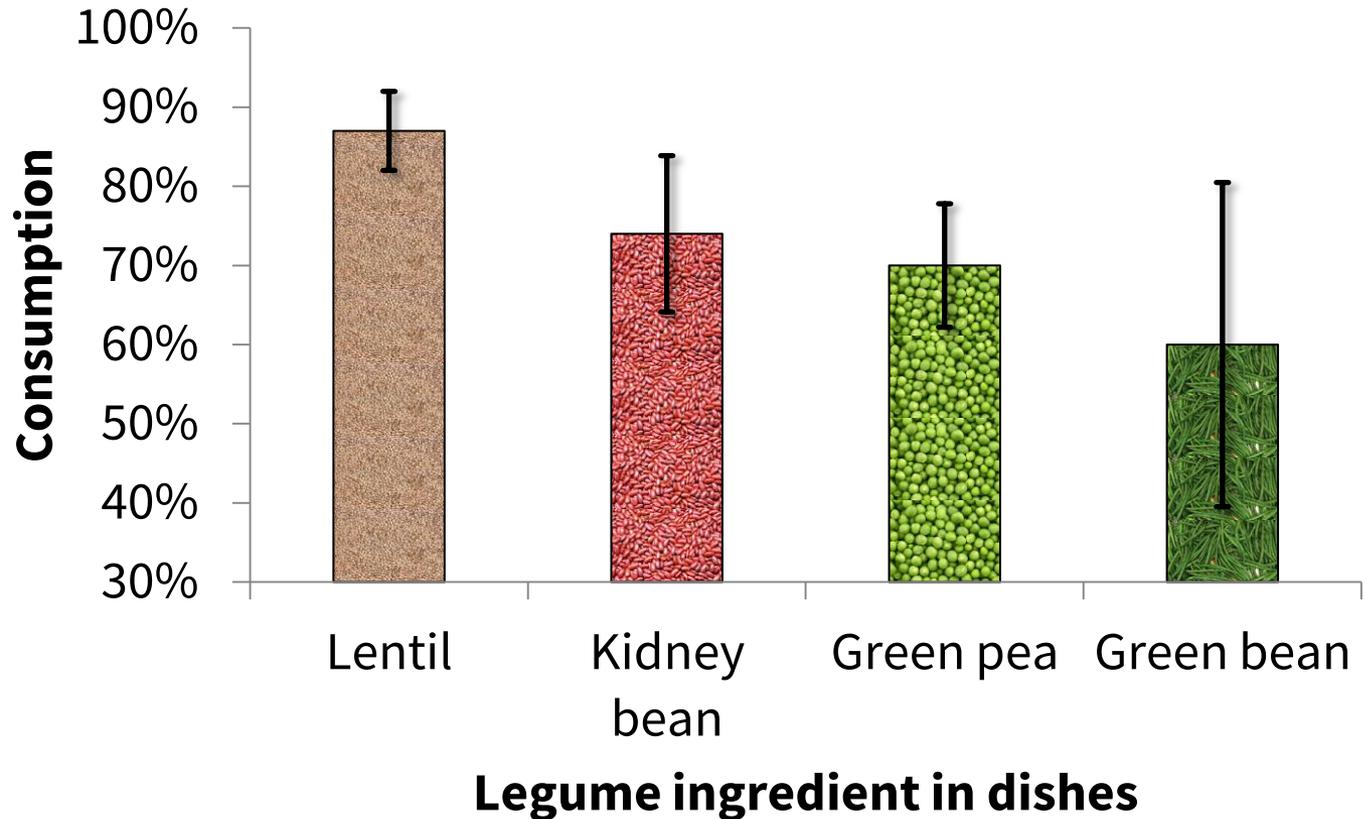


## Legume consumption in schools

	Consumed (%)	Served portion	Case
Lentil	87 %	333	3
Kidney bean	74 %	145	4
Green pea	70 %	381	5
Green bean	60 %	1470	12
Average of legumes	67.6%	2 329	
Average of all dishes	74% (33%-100%)	9 399	



# Legume consumption in percent



## Conclusions

Too many waste





## Conclusions

Efficiency of regulation:

**60% - 80%**





## Solutions?

Good question.....

- Change attitude - (education, campaigns, etc.)
- Serve appealing dishes – creativity, innovation, budget)
- Self-service system in school catering



# General contact information



innovation  
development  
research

**Inderere Institute for Food System Research and Innovation Ltd.**  
[www.indere.hu](http://www.indere.hu)  
[indere@indere.hu](mailto:indere@indere.hu)



**TR**ansition paths to **sU**stainable legume-based systems in **E**urope (**TRUE**) has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 727973

Website: [www.true-project.eu](http://www.true-project.eu)

Email: [info@true-project.eu](mailto:info@true-project.eu)

Facebook/Twitter: [@TrueLegumes](https://www.facebook.com/TrueLegumes)

