

Faculty of Agriculture and Food Sciences University of Sarajevo

## Balkan HERD Programm 2010-2015 Mineral improved food and feed crops for human and animal health in Balkan countries

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11/24/2016

Sarajevo, September 19th, 2016

## **Objectives**

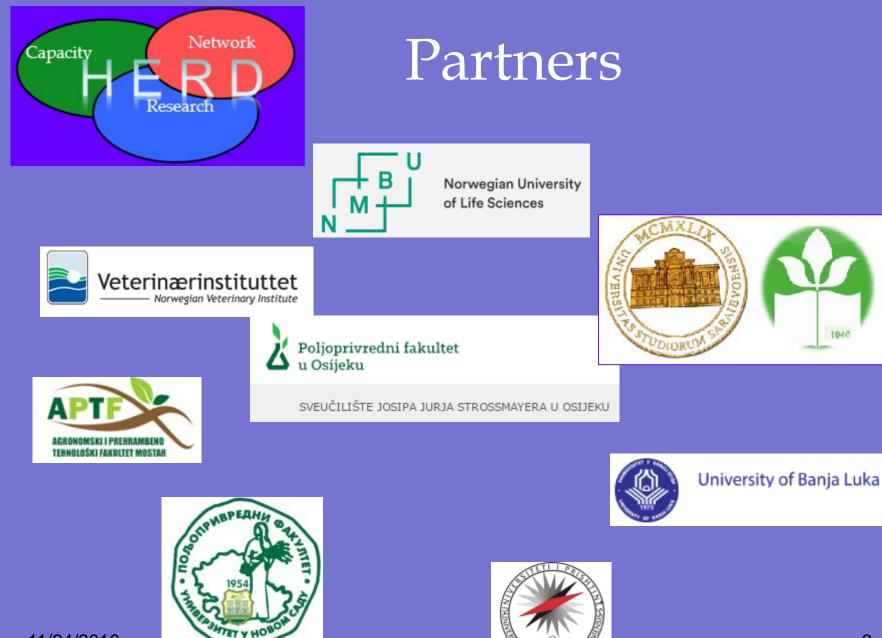
### Capacity

Improving academic staff competition and strengthening cooperation between WB Universities through joint research work on improving trace mineral status in fodder

crops

### Network

### Research



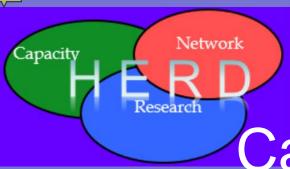
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# Capacity building/networking

Improving skill and knowledge through NMBU courses and staff visiting (relationship between toxic and essential elements in fodder crops and animals and consequently in humans





# Capacity building/research

# Ten students participated in field experiments on farmers fields



### Network Capacity Capacity Research building/research/networking Master student at NMBU -

successfully completed study

Search



Norwegian University of Life Sciences

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Iron and zinc availability to broiler chicken from mineral biofortified wheat Mrkaljevic, Dzana (Master thesis, 2015-03-02) This study was conducted to investigate the effect of mineral biofortified wheat with fungal phytase addition on iron (Fe) and zinc (Zn) availability in broiler chicken breast muscle and liver, their excretion in feces 1/24/2016	This Archive By Issue Date Authors Titles Subjects Types Journals All Archives	6

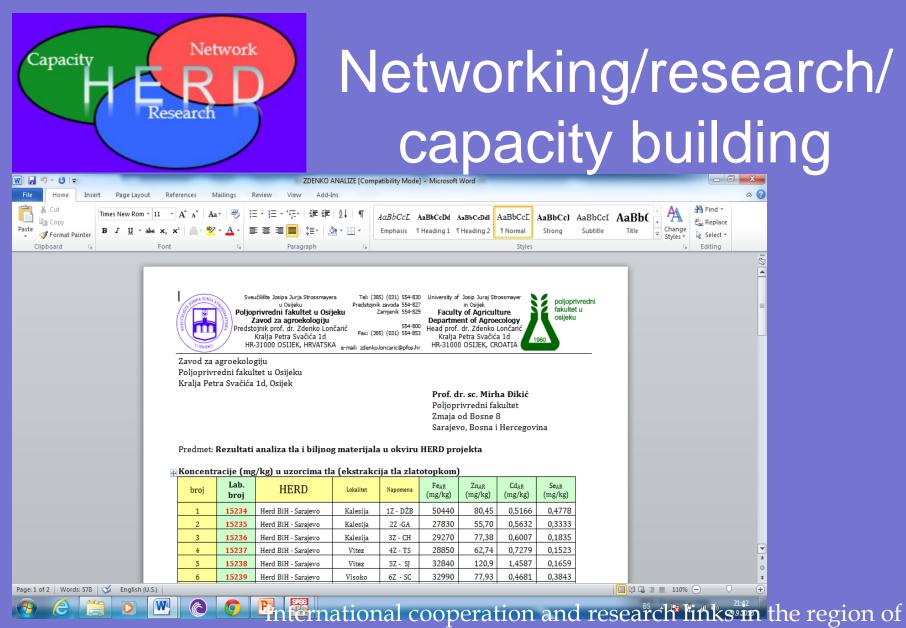


# Networking

- Workshops every year (B&H, Croatia, Monte Negro) useful discussion - next slide
- Direct cooperation
- Positive effect on scientists from different universities leading to more intensive networking
- Gather expirience from Osijek and Novi Sad
- Scientific papers slide 13
- Conference and congress slide 14
- Student from Osijek participated in Student congress in Sarajevo 2016



- Kick off meeting Sarajevo 2011
- January 2012 Zagreb
- November 2012 Osijek
- November 2013 Budva (Montenegro)
- November 2014 Dubrovnik
- October 2015 Dubrovnik



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International cooperation and research links in the region of Western Balkans developed during the project are very stable and intense, and represent an important basis for effective 9 scientific cooperation.





- univestigated subject under our conditions related to Zn, Se, Fe, and Cd content in feed
- soil, plant and blood collection, questionnaire 16 farms
- maize experiment in farmers field connection with agricultural practice and farmers (the same experiment in Mostar, Banja Luka i Sarajevo – good collaboration) – four years lasts
- clearer picture of micronutrient status of soil, plant and animals for the country.
- impact on farmers for introducing this as regular fertilization practice to make them aware of the impact of selenium and zinc on animal and human health
   11/24 120161 gh feed and food chain



## Research

### sampling



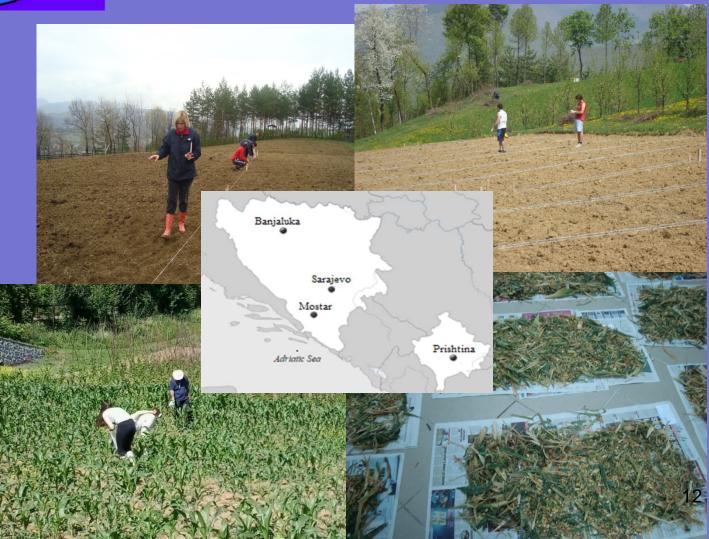






## Research

Biofortification of Corn silage plants by Zn and Se - experiment



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# Scientific outcomes

A. Scientific Papers

- Ademi, A., Govasmark, E., Bernhoft, A., Hysen Bytyqi , MirhaDjikic , Maja Manojlovic, Zdenko Loncaric, Milanka Drinic, AdrijanaMajicFilipovic and Bal Ram Singh(2015). Status of selenium in sheep and dairy cow blood in Western Balkan countries. Acta Agric. Scand. B. Animal Sciences DOI.org/10.1080/09064702.2015.1048712.
- Džomba, E., M. Đikić, Z. Lončarić, D. Gadžo, V. Ivezić, S. Muratović, M. Šperanda, B.R. Singh(2014): Selenium status of cows and sheep as a consequence of regional differences and feeding practice on small farms in Central Bosnia and Eastern Slavonia. Krmiva 56 (2), 63-70.
- Đikić, M., E. Džomba, D. Gadžo, T. Gavrić, J. Grahić, Dž. Hadžić, B.R. Singh (2015): Relations between soil chemical properties and cadmium content in green mass of silage maize. Works of the Faculty of Forestry University of Sarajevo. Special Edition. Volume 22, pp. 255-261. ISSN 2490-3193.



## B. Conferences

- Dzomba E., S. Muratovic (2011)The effect of sodium selenite and vitamin E injection to late pregnancy ewes on selenium status on ewes and offspring. 18th International Conference "Krmiva 2011", Opatia, Croatia.
- Džomba, E., M. Đikić, Z. Lončarić, D. Gadžo, S. Muratović, M. Šperanda, B.R. Singh (2014): Seleniumstatus of cows and sheep as consequence of regional differences and feeding practice at small farms in Central Bosnia and Eastern Slavonia. Book of Apstracts 21st International Conference KRMIVA 2014, June 4-6, Croatia.
- E. Džomba, S. Muratović, S. Čengić-Džomba, Dž. Hadžić (2015): Seasonal fluctuation of selenium in natural pastures of Bosnia and Herzegovina. 22nd International conference KRMIVA 2015, 27-29 May, 2015, Opatija, Croatia.
- T. Gavrić, M. Đikić, D. Gadžo, J. Grahić, B. R. Singh (2015): Mineral matter content in the grain of common and Tartary buckwheat.26th International scientific-expert conference of agriculture and food industry, 27-30 September, Sarajevo, B&H.
- M. Đikić, E. Džomba, D. Gadžo, T. Gavrić, J. Grahić, Dž. Hadžić and B. R. Singh (2015): Relations between soil chemical properties and cadmium content in green mass of silage maize. 9th Congress of the Soil Science Society of Bosnia and Herzegovina, 23-25 November, Mostar, B&H.

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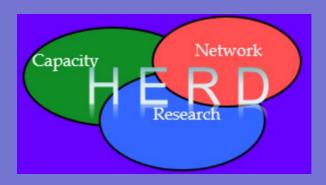


### Afterwards

1<sup>st</sup> Student Congress Food-Nutrition-Health Sarajevo, 7-9, July, 2016



- Kučera I., Ivezić V., Lončarić Z. (2016): Winter wheat agrofortification by foliar application of zinc and selenium
- Grubišić S., Rebekić A., Lončarić Z. (2016): *In vitro* bioavailability of wheat grain iron and zinc

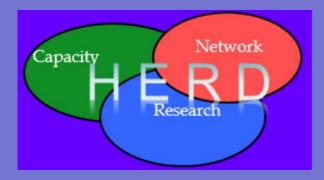


### Afterwards

27th International Scientific-Expert Congress of Agriculture and Food Industry, Bursa, Turkey 26-28 September.



M. Đikić, E. Džomba, D. Gadžo, Đ. Grujčić, A. Filipović, M. Drinić, S. Aliu, and B. R. Singh (2016): Agronomic Biofortification of Fodder Maize with Zinc and Iron





Implementation of the HERD project has brought a new dimension to scientific cooperation among regional institutions.