Food and Agriculture Organization of the United Nations

5th Meeting of the European and Eurasian Soil Laboratory Network (EUROSOLAN)

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Control of analytical methods of authorized laboratories of the Republic of Croatia

Soil Institute
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EUROSOLAN
EUROPEAN AND EURASIAN SOIL LABORATORY NETWORK

GLOBAL SOIL PARTNERSHIP

Soil Institute
Department for chemical, physical and biological tests

Since the establishment of the Soil Institute in 2001, a laboratory for soil analysis has been established, based on the foundations of the laboratory of the Agricultural Science Center (PZC). In 2009, the existing laboratory was renovated and equipped with new laboratory furniture and equipment.

During the entire period, the laboratory expanded its scope of work, introduced new methods, developed a management system, and intensified activities in the direction of obtaining certification of competence in accordance with the international standard HRN ISO/IEC 17025.

The result of hard work is obtaining a positive rating from the Croatian Accreditation Agency, and a certificate for the reported methods was received on August 29, 2011.

The laboratory mostly covers the field of soil analysis (chemical and physical), plant material and organic fertilizers.

The reference laboratory for permanent monitoring of the condition of agricultural land and testing of the fertility of agricultural land has a task in accordance with the Ordinance on the methodology for monitoring the condition of agricultural land (Official Gazette 47/2019), art. 48.:

- control the activities of authorized laboratories in the area of authorization
- according to the plan, conduct inter-laboratory comparative tests with authorized laboratories and ensure the necessary further activities after such comparisons

Authorized laboratories

- Ordinance on the methodology for monitoring the condition of agricultural land (Official Gazette 47/19)
  Authorized laboratories for performing soil analysis, for monitoring the state of agricultural land through testing soil fertility:

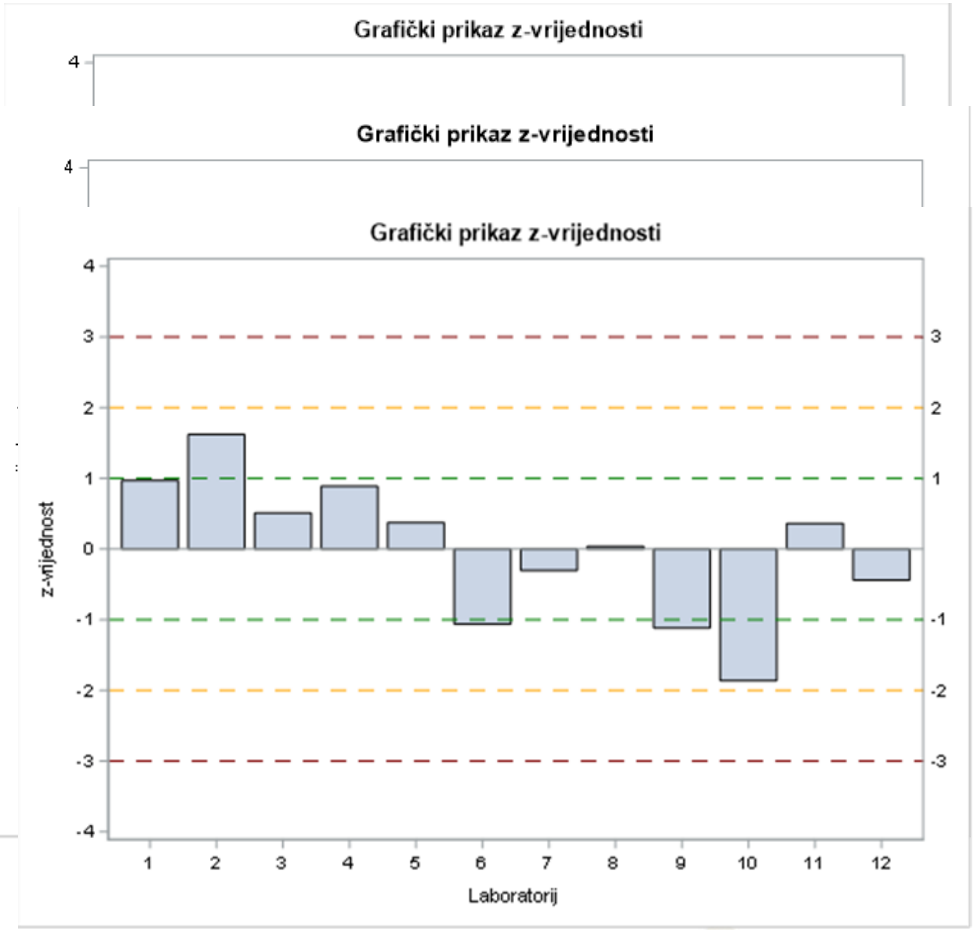
1. **RAZVOJNA AGENCIJA AGRO,** ustanova za razvoj grada, Ivana Nepomuka Jemeršića 37 D, Grubišno Polje.
2. **FAKULTET AGROBIOTEHNIČKIH ZNANOSTI OSIJEK**, Laboratorij Zavoda za agroekologiju, Vladimira Preloga 1. Osijek (FAZOS).
3. **LABOSAN d.o.o**. Rim 42, Zagreb, Odjel Laboratorij Virovitica, M. Gupca 254,Virovitica
4. **INSPECTO d.o.o**., Laboratorij u Osijeku, Vukovarska cesta 239 b. Nemetin.
5. **AGRONOMSKI FAKULTET** Sveučilišta u Zagrebu**, Zavod za ishranu bilja**, Zagreb,
6. **AGRONOMSKI FAKULTET** Sveučilišta u Zagrebu, **Zavod za Opću proizvodnju bilja**,
7. **AGRONOMSKI FAKULTET** Sveučilišta u Zagrebu, **Zavod za pedologiju**, Zagreb,
8. **AGRONOMSKI FAKULTET** Sveučilišta u Zagrebu, **Zavod za melioracije**, Zagreb,
9. **AGROKEMIJSKI LABORATORIJ, KUTJEVO** d.d., Požega, Kralja Tomislava 1, Kutjevo.
10. **VISOKO GOSPODARSKO UČILIŠTE KRIŽEVCI**, Križevci, Mislava Demerca 1.
11. **REGIONALNI CENTAR ZA BIOTEHNOLOŠKA ISTRAŽIVANJA I RAZVOJ BRODSKO-POSAVSKE ŽUPANIJE**, Slavonski Brod, Ivana Cankara 76.

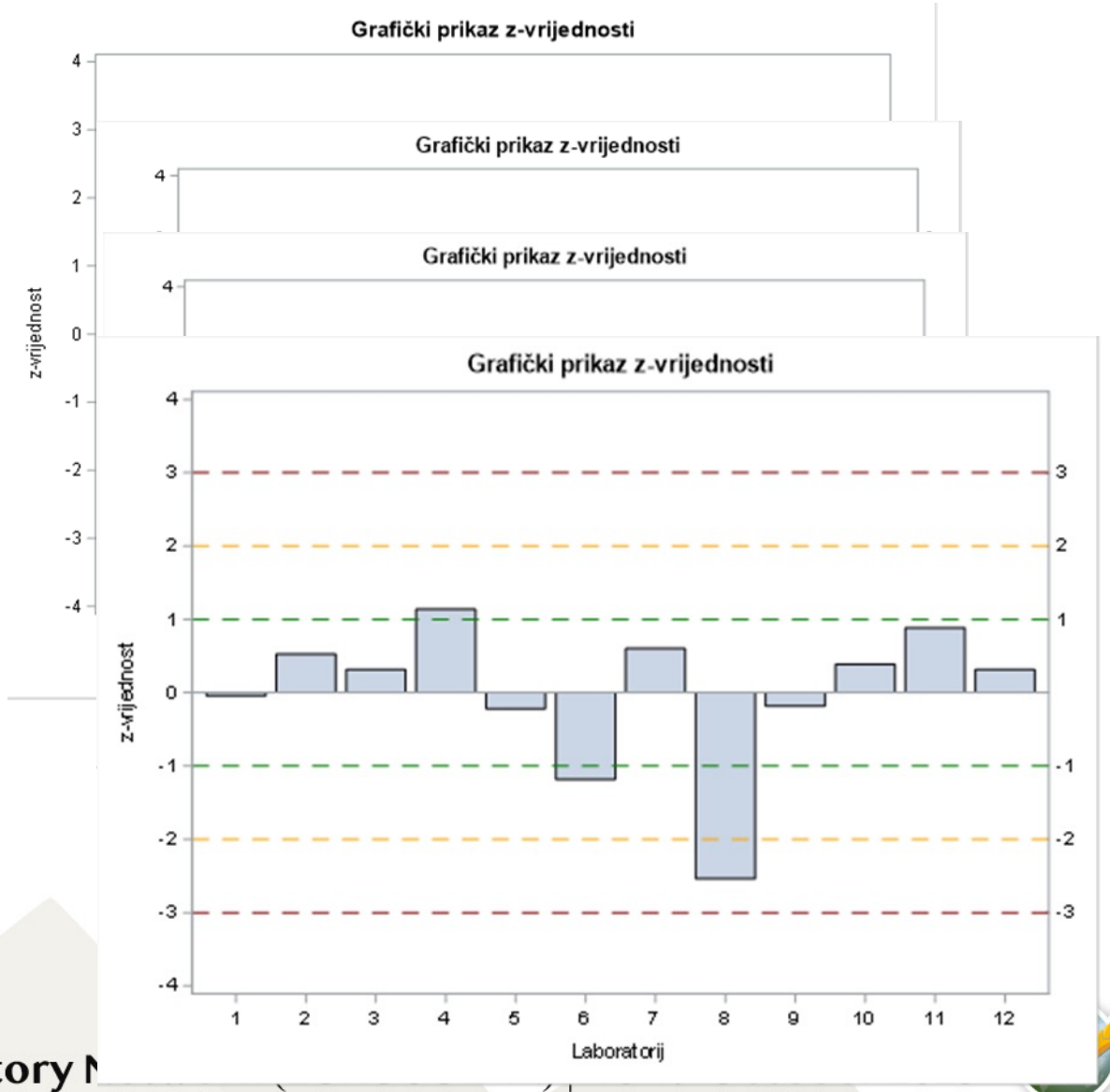
- The purpose of this PT was to discover potential problems when measuring parameters for testing soil fertility, and to compare measurement results and improve the quality management system in accredited/authorized laboratories.

  This test should demonstrate and compare the work of several laboratories in terms of the performance of measuring identical samples, in accordance with the previously defined requirements of the Ordinance (Annex 1). Recommended methods:

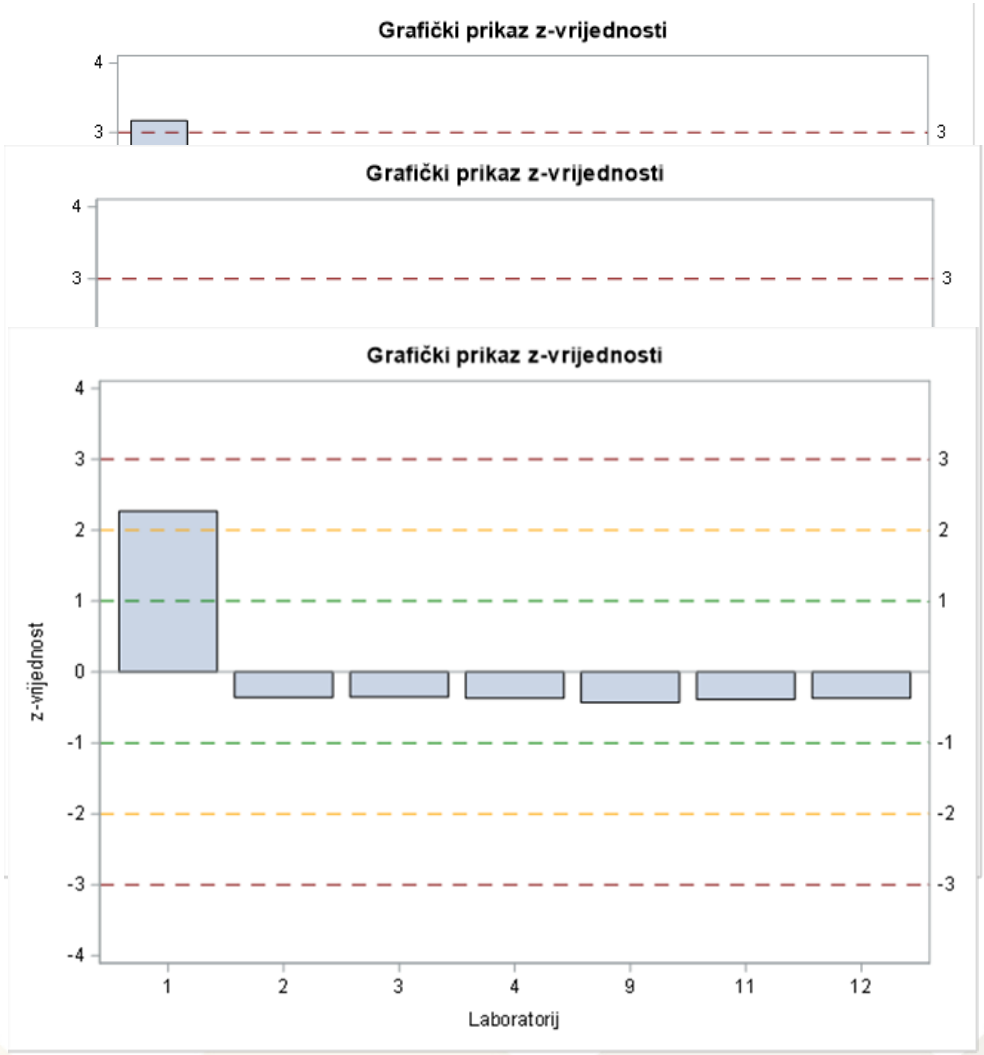
	Vrsta ispitivanja	Jedinica	Predložena metoda
1.	Određivanje pH vrijednosti u KCl-u / u H_2O	-	HRN ISO 10390
2.	Određivanje hidrolitičke kiselosti titracijom	$cmol^{(+)}$ / kg	Metoda po Kappen-u [1)]
3.	Određivanje sadržaja karbonata	%	HRN ISO 10693
4.	Određivanje sadržaja ukupnog dušika	%	Metoda po Kjeldahl-u; HRN ISO 13878
5.	Određivanje sadržaja lakopristupačnog kalija u obliku K_2O	mg/100 g	Plamenfotometrijsko određivanje nakon ekstrakcije AL otopinom u obliku K_2O
6.	Određivanje sadržaja lakopristupačnog fosfora u obliku P_2O_5	mg/100 g	Spektrofotometrijsko određivanje nakon ekstrakcije AL otopinom u obliku P_2O_5
7.	Određivanje sadržaja humusa	%	Bikromatna spektrofotometrijska metoda; HRN ISO 10694

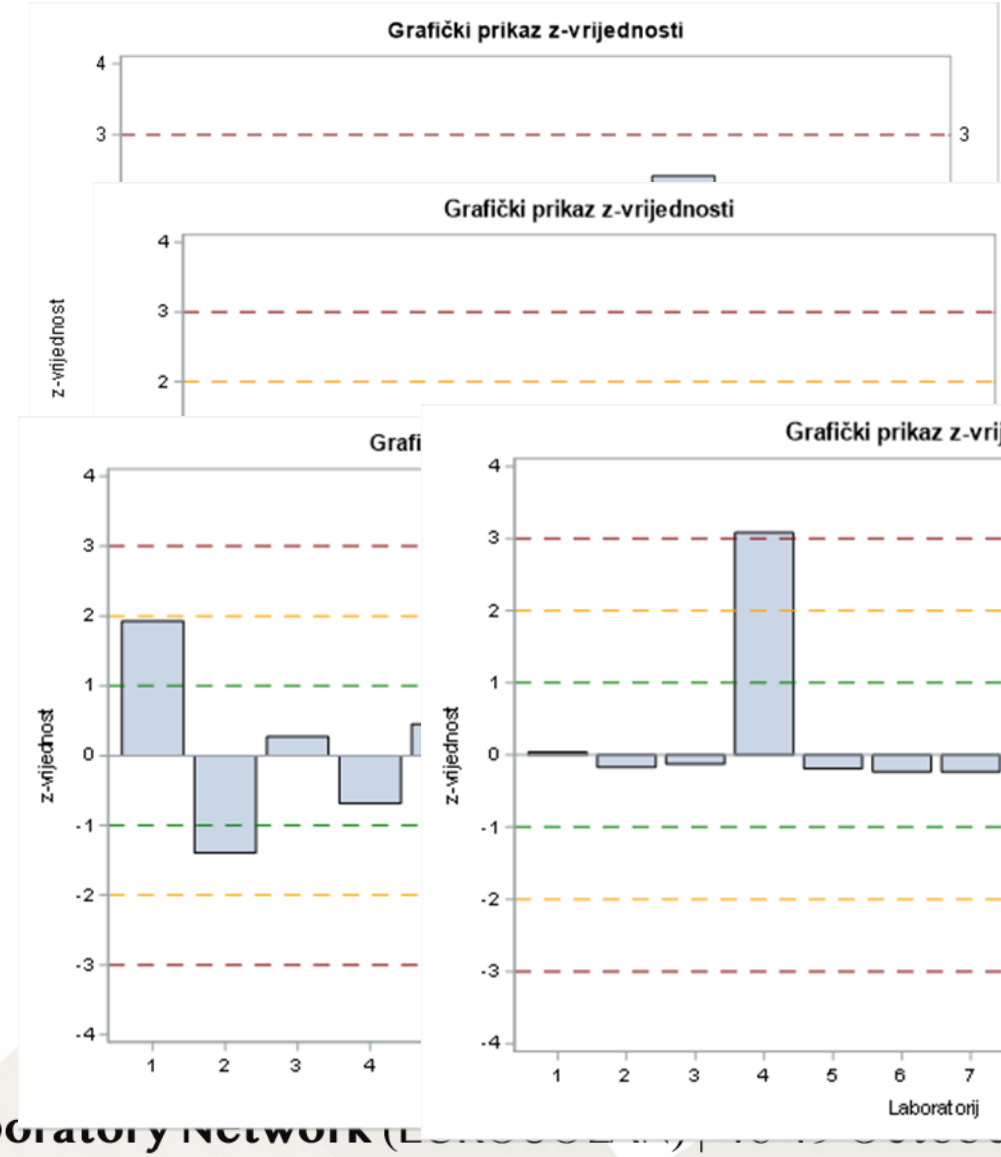
Result: Sample K-5





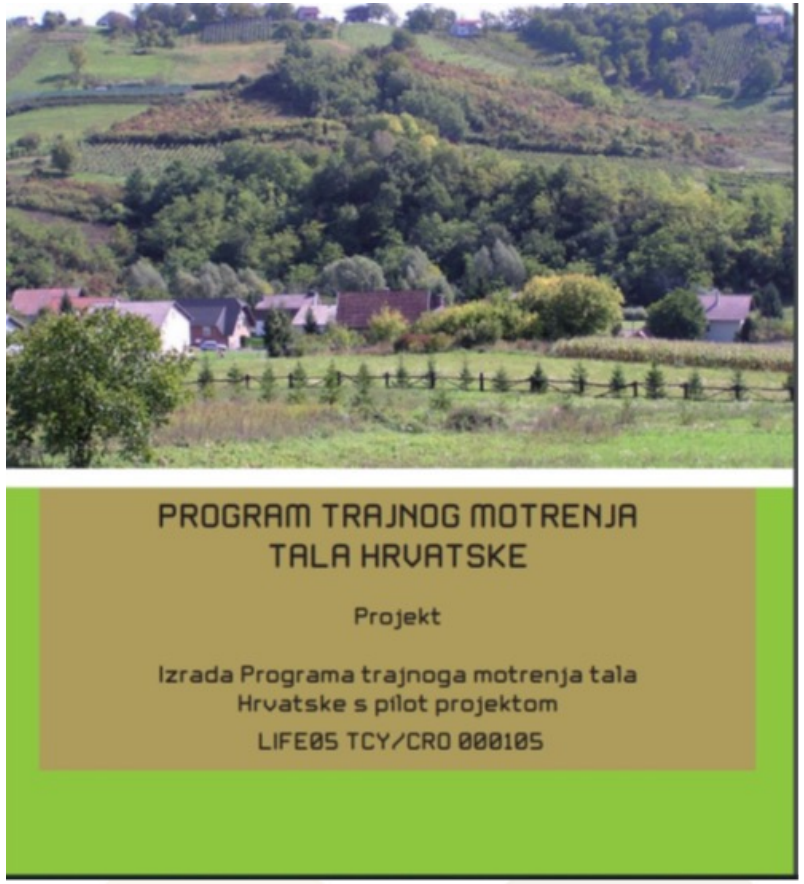
Result: Sample K-9





Permanent monitoring

- Program of permanent monitoring of the state of agricultural land of the Republic of Croatia - MONITORING



Projects

- 2003-2015 Soil fertility control on agricultural soil throughout all of Slavonija's counties
- 2006-2009 Prepared permanent monitoring program of agricultural soils (LIFE 2006-2009)
- 2007-2011 Digitalization of main pedological map of Croatia 1: 50.000
- 2008-2009 Reconstructing, extending and equipping the laboratory
- 2012-2014 IPA cross-border programme Croatia - Serbia
- 2014-2015 IPA Multi – Beneficiary Statistical cooperation programme EUROSTAT – LUCAS – Croatia (3 500 locations)
- 2014-2016 LULUCF (Land Use_Land Use Change and Forestry) Enviromental Protection Agency and Croatian Geology Institute - Agency for Agricultural Land – Croatian Forestry Institute

Projects

- 2014 Monitoring soils in the flooded areas of Drenovci, Gunja and Vrbanja counties
- 2014-2015 Participating in comission for the allocation of leases of agricultural land in property of Republic of Croatia; Assessment of the market value of agricultural land
- 2020-2023 AGROEKOTEH - Optimization of soil management, adaptation of agroecosystems and agrotechnical measures to climate changes
- 2023 Program of permanent monitoring of the state of agricultural land of the Republic of Croatia – MONITORING; Migration, testing and release into production of the information system ISAPZ (application system for agricultural land) on HAPIH's servers, development of Laboratory Information Management System (LIMS) SimpleLab in CT

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Thanks for your attention!
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