

Summary/Conclusions

from 1st International Scientific Conference: „Soil Tillage – Open Approach“, CROSTRO-Croatian Soil Tillage Research Organization, 09-11 September 2010, Osijek, Croatia.

1st International Scientific Conference „Soil Tillage – Open Approach“, was held under CROSTRO organization (Croatian Soil Tillage Research Organization) which is branch of ISTRO (International Soil Tillage Research), from 09-11 September, 2010, Osijek, Croatia.

President of organizing committee: prof. dr. sc. Bojan Stipešević (Croatia)

President of scientific committee: prof. dr. sc. Danijel Jug (Croatia)

At conference has attended about 50 scientists-participants from 7 countries, with papers divide on 4 main topics session, as follows:

1. Soil tillage in function of environmental protection
2. Conservation tillage – direct seeding – no-tillage
3. Soil biotic and abiotic degradations – causes and consequences
4. Soil tillage – new approach – technologies – perspectives

Plenary session:

1. György Várallyay, Csilla Farkas

Agrotechnical measures for reducing the risk of extreme soil moisture events

2. Márta Birkás, Danijel Jug, Ivica Kisić, Jan Kren, Márton Jolánkai

Environmentally-sound soil tillage in Central Europe - step by step

3. Ferdo Bašić, Ivica Kisić, Milan Mesić

Framework of climate-change and soil type oriented soil tillage in agricultural regions in Croatia

4. Danijel Jug, Márta Birkás, Srđan Šeremešić, Bojan Stipešević, Irena Jug, Ivan Žugec, Ivica Đalović

Status and perspectives of soil tillage in South-East Europe

Oral presentation:

Macák M., Smatana J., Šimanský V., Đalović I., Demjanová E., Jug D.

Soil tillage and crop management and their impact on sustainability and soil physical characteristics

Jug I., Jug D., Đurđević B., Horvat T., Habada V., Brozović B.

Effect of nitrogen fertilization under reduced soil tillage on chloroplast pigments concentration in leaves of winter wheat

Kisić I., Basic F., Birkas M., Aleksandra J.

Soil conservation the key role of soil tillage under actual and altered climatic conditions

Seremesic S., Milosev D., Manojlovic M., Djalovic I., Zeremski T., Ninkov J.

Soil organic carbon accrual in aggregates of arable soil in wheat based cropping systems

Cvijanović G., Dozet G., Milošević N.

Measures for increase of degraded soil biogenity

Tóth B., Stipešević B., Jug D., Lévai L.

Can we increase available nutrients using bacteria?

Jug I., Jug D., Stipešević B., Vukadinović V., Sabo M., Grabić A., Stanić M.

The impact of reduced tillage on the morphological and physiological parameters of soybean

Kornél T., Jóri J. I.

Numerical Approaches in Tillage and Soil Modeling

Vukadinović V., Jug D.

Geostatistical model evaluation for soil tillage suitability on Osijek-Baranya County example
Smutný V., Neudert L., Dryšlová T., Birkás M.
The yield and quality of bread wheat under different agronomic factors
Stipešević B., Brozović B., Jug D., Stošić M., Jug I., Vukadinović V., Simić M., Mladenović-Drinić S., Brigita T., Laszlo L.
The influence of soil tillage system at germination of buckwheat, millet and sudan grass sown as post-harvest summer crops
Cvetanovska L., Kratovalieva S., Stipesevic B., Jug D., Jug I., Klincarovska I.
Primary production at seed rice

Poster presentation:

Shamsi K.
Effect of Reduction of Drought Stress Using Supplementary Irrigation of Dryfarming Chickpea(*Cicer arietinum*L.) Varieties
Javůrek M., Mikanová O., Vach M.
Assessment of conservation tillage effect on Luvisol, loam soil, consequently on cereal production in the Central Bohemia
Vach M., Javůrek M., Hýsek J.
The role of non-chemical plant protection in conservation methods of winter wheat growing
Dumanović Z., Dragičević V., Kolčar D., Ercegović Đ., Pajić M., Jug D.
Environmental aspect of nitrogen availability under subsoiling and mole drainage
Winkler J., Smutný V.
The impact of different soil tillage on weed infestation in cereals and winter oilseed rape
Rátonyi T., Megyes A., Sulyok D., Harsányi E.
Evaluation of soil tillage impacts on soil physical condition in different production sites in Hungary
Jug D., Jug I., Stipešević B., Stošić M., Brozović B., Đurđević B.
Influence of different soil tillage treatments on soil compaction and nodulation of soybean root

After scientific part of conference was organized a Field trip to field experimental station (2 locations), National Lipizzaner farm and St. Peter's Cathedral in Đakovo (a guided conducted tour) and visit of wine cellar.

Conclusions and actions from the Conference

At the present time is increasingly feel the impact of the energy crisis, climate, social and economic changes at global, regional and local level. Due to these changes in agricultural production is becoming increasingly complex and difficult. In this situation, science should be imposed as a leader in finding the best possible solutions and capabilities in the production of sufficient quantities of food, while respecting and abiding by the conditions of ecological sustainability and acceptability. In this complex chain soil tillage play very important role.

Traditional approach to conventional tillage, with all the advantages for growing crops, has its negative sides, especially in the domains of physical, chemical and biological complexes of soil fertility, causing increasing degradation and pollution of soil and environment. Regarding this, the most important changes that occur using conventional crop production, primarily tillage may be the following: anthropogenic soil compaction, loss of humus and stable soil structure, undesirable changes in soil reaction, cation exchange capacity and soil microbial activity, external and internal erosion, etc. Furthermore, conventional tillage is expensive; it requires a lot of time, human and machine involvement, more rigorous organization of work in the optimum period, etc. Based on the foregoing, it is clear that the agriculture of today's increasingly understood from an ecological point

of view, or environmental pollution, but also the economic aspect, and finds solutions that can help in prevention, and improvement of soil degradation, and thus the environment.

Different conceptions of reduced / conservation soil tillage occurred because of the settlement, primarily soil erosion by wind and water, the problem of accumulation of soil and water conservation in dry areas, preventing groundwater pollution, and reducing the consumption of energy, primarily oil and oil products, etc.

From the foregoing it follows that the more developed countries were willing and open to acceptance of reduced tillage technologies. Such approaches have made a big step forward in resolving its large and accumulated problems concerning the ecology, energetic, production, organization, and economic aspects.

Also it should be noted that in most European countries, reduced tillage is not accepted in proportions that were realistic to expect based on their climatic and soil conditions. For such a state partially "culprit" are economic ability of individual countries in adopting new scientific knowledge and new technical and technological achievements, and partly a different approach to the treatment of soil, as well as the burden of tradition. Europe, especially Eastern, has the greatest potential for expansion of this technology.

In order to apply new technologies for soil tillage (and beyond) and successful as accepted, much greater openness and connection between farmers and scientific institutions are required.

According postulates "Science oriented to practice and practice oriented to science" and in relation to previous, as a main conclusions and action plans from conference were:

- Closer approach of scientists and farmers to the soil;
- Climate oriented crop production;
- Consider to climate changes;
- Environmental and water aspects of crop production;
- Choosing a proper soil tillage;
- Approach to soil tillage changes: "Step-by-step";
- Soil tillage – Open approach

President of Scientific Committee
Prof. dr. sc. Danijel Jug

