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*Website:* <http://hemmat.iut.ac.ir>

***Personal Information***

- *Marital status:* Married - one son and one daughter.
- *Nationality:* Iranian (at birth and at present).
- *Age:* 59.
- *Place of Birth:* Shiraz, Iran.

***Education***

- Cranfield University, Silsoe College, Silsoe, Bedford, England.

*Degree:* Ph.D. in Agricultural Engineering, 1988.

*Special Fields:* -Physical Properties of Agricultural Materials.

-Soil Tillage Mechanics.

*Thesis:* Stress/Strain Analysis and Internal Bruising of Potato Tubers.

*Award:* Overseas Research Student (ORS) Scholarship.

- University of California at Davis, Davis, California, USA.

*Degree:* MS in Agricultural Engineering, 1978.

*Special Field:* Physical Properties of Agricultural Materials.

*Thesis:* Determining the Minimum Thickness of Padding for Materials Bruising Avoidance in Mechanical Harvesting and Handling of Fruits and Vegetables.

- Tabriz University, Tabriz, Iran.

*Degree:* B.S. in Agricultural Engineering, 1974.

*Special Field:* Power and Machinery.

*Honor:* Ministry of Science and Higher Education Scholarship  
(First Class Student in the field of Power and Machinery).

### **AWARDS**

- Outstanding teacher award winner of Isfahan University of Technology in 2011.
- Outstanding researcher award winner of Isfahan Providence in 2010.
- Outstanding high citation researcher award winner of Isfahan University of Technology in 2008.
- Outstanding project award winner of Isfahan University of Technology in 2005.
- Outstanding researcher award winner of Isfahan University of Technology in 2003.
- The 11<sup>th</sup> Kharazmie International Festival Award for cooperation in *Design and Development of a Sugar beet Steckling Transplanter*.
- Oversee Research Student (ORS) Scholarship for research merit in the United Kingdom.
- First Class Student Scholarship for graduate study in the United State of America.

### **Professional**

- Member of the International Soil Tillage Research Organization
- Member of the Asian Association for Agricultural Engineering
- Member of Iranian Society of Agricultural Engineering and Mechanization

### **Professional experience**

- Professor in Agricultural Engineering (Power & Machinery),  
College of Agriculture, Isfahan, University of Technology, Isfahan, Iran,  
(5/2004 - Present).
- Associate Professor in Agricultural Engineering (Power & Machinery),  
College of Agriculture, Isfahan, University of Technology, Isfahan, Iran,  
(12/1997 – 5/2004).
- Assistant Professor in Agricultural Engineering (Power & Machinery),  
College of Agriculture, Isfahan, University of Technology, Isfahan, Iran,  
(7/1988 -12/1997).
- Instructor in Agricultural Engineering, (Power & Machinery),  
College of Agriculture, Isfahan University of Technology, Isfahan, Iran.  
(3/1981-7/1988).
- Systems Analyst.  
Agricultural Engineering Dept., Washington State Univ., Pullman,  
Washington, USA, (2/1979-5/1980).

### **Academic Leave**

Oct 2006-August 2007:

working on soil compaction sensors at Biological Systems Engineering  
Department of University of Nebraska-Lincoln, Lincoln, Nebraska, USA

### **Positions**

- 10/2010- present: Head of Power and Machinery Dept. College of Agriculture, Isfahan University of Technology, Isfahan, Iran.
- 5/2010: Member of Scientific Committee of 6<sup>th</sup> National Congress of Agricultural Machinery Engineering and Mechanization
- 4/2010-present: Member of coordination committee of Agricultural Machinery, President Office, Vice-Dean of Scientific and Technology
- 3/2010- present: Member of Editorial Board of *Iran Journal of Oil crops Research*, Research Center for Agricultural and Natural resources, Golestan Providence.
- 9/2003 – 9/2006: Head of Power and Machinery Dept. College of Agriculture, Isfahan University of Technology, Isfahan, Iran.
- 8/2001-8/2009: Member of Editorial Board of *Scientific Journal of Agriculture*, College of Agriculture, Shaid Chamran University, Ahwaz, Iran.
- 12/2000-12/2004 Member of Editorial Board of *Journal of Science and Technology of Agriculture and Natural Resources*, College of Agriculture, Isfahan University of Technology, Isfahan, Iran.
- 2/2000 – 7/2004: Member of Executive Board of Iranian Society of Agricultural Engineering and Mechanization.
- 7/1997 -10/2002: Member of Commission of Inspecting and Coordinating Research projects, Organization of Agricultural Research, Tehran, Iran.
- 4/1997 - Present: Member of Technical Committee of Machinery and Mechanization, Civil Scientific Research Council
- 2/1997 – 2/1998: Member of Agricultural Mechanization Coordination Council, Ministry of Agriculture, Iran.
- 1/1996-4/2002: Member of Editorial Board of *Agricultural Engineering Research. Journal*. Karaj, Iran.
- 12/94 - Present: Member of Editorial Board of *Water, Soil, Machine Magazine*, Tehran, Iran.
- 1/1993 – 7/2002: Member of Research Technical Committee of Power and Machinery, Agricultural Engineering Research Institute, Karaj, Iran.
- 1/1992 - Present: Member of Agricultural Machinery and Mechanization Committee, Ministry of Culture and Higher Education, Iran
- 4/1990 - 3/1994: Head of Power and Machinery Dept. College of Agriculture, Isfahan University of Technology, Isfahan, Iran.
- 1/1990 - 1/1994: Dean, College of Agriculture, Isfahan University of Technology, Isfahan, Iran.

- 6/1981 - 3/1982: Vice Chancellor, Isfahan University of Technology, Isfahan, Iran.

### ***Computer Experience***

Familiar with Windows XP, Microsoft Office XP and SAS and SPSS statistical packages, Manifold (GIS) and LabVIEW.

### ***Patents***

- Double-pressing hay baler, patent #34709
- Variable-rate grain drill, patent #50200
- On-the-go horizontal mechanical resistance measuring sensor, patent #50211
- On-the-go soil moisture-content measuring sensor, patent #50216
- On-the-go Power and energy meter for electric motors #52710
- On-the-go EC- measuring sensor #70683
- A real-time control system for individual dairy cow feed intake

### ***Teaching Experience***

#### **A. Undergraduate and Postgraduate Courses**

- Soil Tillage (BS)
- Principles of Farm Machinery (BS)
- Hydraulic Systems in Farm Machinery (BS)
- Tractor-Implement Technology (BS)
- Tractor-Implement Mechanics (BS)
- Mechanical Properties of Agricultural Materials (BS)
- Physical Properties of Agricultural Materials (MS)
- Testing and Evaluation of Farm Machinery (MS)
- Agricultural Machinery Design (MS)
- Soil Dynamics (Ph.D.)
- Tillage Systems (Ph.D.)

#### **B. Short Courses**

- Soil Tillage Mechanics
- Deep Tillage Mechanics
- Soil-Machine Relation
- New Development in Cereal Planting Machinery
- Tillage Systems and Methods of Planning and Conducting Tillage Experiments
- Tillage for Wheat Production in Isfahan
- John Deere Tractors Model 4560

- Fundamental of Tillage operations
- Soil sampling and on-the-go sensors for measuring physical and mechanical properties in precision farming

### ***Research experience***

#### **A) Ph.D. Supervision:**

2010-2012 Ghafori, H.

Design, development and evaluation of suction pneumatic conveyor in dense phase

Role: Joint supervisor

2000-2003. Shirani, H.

Tillage and farmyard manure effects on Lavark soil physical properties, solute transport, and root morphology of corn.

Role: Advisor

2000-2003. Mossadeghi, M.R.

Study of Compaction History (Pre-Compaction Stress) and its Relationship with some Physico-Mechanical Properties of several Soils in Isfahan, Iran.

Role: Joint supervisor

1993-1996. Kazemeinkhah, K.

Design, Construction and Evaluation of a Semi-automatic Sugar Beet Steckling Transplanter.

Role: Joint supervisor

#### **B) MSc. Supervision:**

Mohammedi, S.

Effect of wing tine and roller packer for chisel plow on draft force and soil loosening

Role: Advisor

2011- Movahedi, A.

Optimization of a recompressing device for hay bales

Role: Advisor

2011- Heidari, A.R.

Design, development of an online fruit firmness measuring system based on nondestructive impact force method

Role: Advisor

2011- Rezvani, M.

Design, development of a rotary soil bin for wear evaluation of tillage tools.

Role: Advisor

2011-Goodarzi, A.

Selection, design and development of the most appropriate mechanism for baling straw for accession to grain combine

Role: Joint advisor

2011- Eazadi, H.

Design, development and evaluation of torque-based mass flow sensor

Role: Joint advisor

2011- Habibi-e-Rad, A.H.

Susceptibility of apple to bruising under impact loading

Role: Supervisor

2011- Tavagoli, N.

Early and one-line detection of Downy Mildew (*Pseudoperonospora Cubensis*) using image processing

Role: Supervisor

2011- Ghasemi Baghbaderani, H.,

Effect of variety, harvesting date and storage duration on some mechanical properties of Golab apple and its bruise susceptibility under quasi-static loading

Role: Supervisor

2011- Hasan Zahtaie, R.

Effect of water and calcium carbonate contents and microstructure induced by wetting and drying on soil compactibility and shear strength

Role: Supervisor

2010-2012 Mousavi-Far, A.

Design, development and evaluation of automatic system for controlling the degree of compactness of cubical-shaped bales.

Role: Joint Supervisor

2010- Davood-Darzi, M.

Design, development and evaluation of a machine for picking and baling sugarcane residues.

Role: Joint advisor

2010-2012 Mohammadi, J.

Design, development and evaluation of strip tillage equipment for row-crop planting.

Role: Joint Supervisor

2010-2012 Rahn timer, T.

Design, development and evaluation of a combined acoustic-force and capacitive sensors for on-the-go measuring soil mechanical resistance and moisture content

Role: Supervisor

2010-2012 Taherabadi, A.

Design, fabrication and evaluation of a length reducer unit of alfalfa in order to produce high density bales

Role: Joint advisor

2010-2012 Yaghobi, M.

Relationship of tire sinkage depth with soil compression properties and dynamic cone index under different soil water conditions

Role: Joint Supervisor

2010-2011 Salar, M.R.

Design, development and evaluation of sub-surface double bent blade tillage implement for conservation tillage

Role: Joint Supervisor

2009-2011 Kargarpour, H.

Design, development and evaluation of a continuous grain mass flow sensor.

Role: Joint advisor

2009-2011 Mirzazadeh, R.

Evaluation of tractive performance of MF800 and Sepahan LZ80 tractors during moldboard plowing.

Role: Joint Advisor.

2009-2011 Akbarie V.

Design, development and evaluation of an intelligent feeder for dairy cows.

Role: Joint Supervisor

2009-2011 Rahimi Fard, A.

Design, development and evaluation of a device for compressing and baling corn silage into plastic bag.

Role: Joint Supervisor

2009-2011 Salehian\_Dastjerdi, M.

Effect of natural age-hardening and external loading on soil compressibility indices of sugarcane fields

Role: Supervisor

2009-2011 Shafiea\_Zadeh, A.R.

Design and development of a soil apparent electrical conductivity sensor.

Role: Supervisor

2008-2010 Nejati, H.

Modification and evaluation of threshing unit of Gushenzhifu DE238 combine

Role: Joint advisor

2008-2010 Nasrnia, A.

Investigate the effect of different drying and tempering operations on rice milling quality.

Role: Joint advisor.

2008- 2010 Veisi\_tabar, A.

Topsoil and subsoil bearing capacity assessment with plate sinkage test under different moisture conditions and ratoon crops in a sugarcane field

Role: Supervisor

2008-2010 Azari Mobarakeh, B.

Effect of plant residues on compressive and shear properties of a silty clay soil.

Role: Supervisor

2008-2010 Binandeh, A.R.

Design, development and evaluation of an on-the-go integrated sensor for measuring soil mechanical resistance measurement.

Role: Supervisor

2008-2010 Nonkaly, N.



Development and evaluation of pickup mechanisms for bean plant harvesting.

Role: Advisor.

2007- Haj-Aboutaleb, M.

Design, development and evaluation of a variable-rate spinner-disc fertilizer

Role: Joint supervisor

2007-2009 Bagvand, I.

Design, development and evaluation of a billet feeder unit for a sugarcane billet planter

Role: Joint supervisor

2007-2009 Namjou, M.

Design, construction and Evaluation of a sugarcane billet planter with overlap planting method

Role: Advisor.

2007-2009 Aghili, N.

Effect of long-term organic on matter on soil compressive (pre-compaction stress) and shear strength

Role: Joint supervisor

2007-2009 Ghorbani, Z.

Determination of some physical and mechanical properties of alfalfa grind

Role: Joint supervisor

2006-2008 Uousefi Moghadam Sheykhan, S.

Effect of puddling intensity on physical properties of three dominant soil textures of paddy fields in Guilan province.

Role: Advisor

2006-2008 Hoseinian,

Investigation of the amount of Isfahan rice varieties breakage in experimental abrasive and frictional whiteners.

Role: Joint supervisor

2006-2008 Khorshandy, A.

Design, development and evaluation of on-the-go horizontal penetrometer and soil moisture sensor

Role: Joint supervisor

2006- 2008 Hasanzadeh, N.

Design, development and evaluation of a sod cutter.

Role: Advisor.

2006-2008 Kardani, M.

Effects of moisture content, maturity of sugarcane stem and rake angle of cutter blade on its shear energy.

Role: Advisor.

2006-2008 Jafari, M.

Design, development and evaluation of a variable rate grain drill.

Role: Joint supervisor

2006- 2008 Khademalghorani, C.

Design, construction and control of a greenhouse tomato harvesting robot prototype.

Role: Joint supervisor

2006-2007 Beigie, H.A.

Effect of laser land leveling using drag-type leveler on soil compaction.

Role: Advisor.

2005-2007 Khani, A.

Design, development and evaluation of a metering unit for a sugar cane billet planter with overlap planting pattern.

Role: Advisor.

2005- 2007 Khameh, H.

Effect of lime and age-hardening on soil shear strength and precompaction stress.

Role: Joint supervisor

2005-2007 Abbasi, A.

Design and development of a pickup and transferring mechanism for a dry pinto bean bush harvester.

Role: Advisor.

2005-2007 Rezaie, H.

Design, development and evaluation of a tedder ( a device for lifting and repositioning the harvested alfalfa).

Role: Advisor.

2005-2007 Ashtiani Araghi, H.

Determination of some physical and mechanical properties of popular rice varieties in Isfahan province.

Role: Joint supervisor

2005- 2006 Nouri, M.

An instrumentation system for measuring tractor (MF-285) field performance for mapping spatial variation in tractor and tillage implement performance parameters.

Role: Supervisor

2005-2006 Reisei Nafchi, A.R.

Evaluation, redesign and modification of a billet dropping control system in a mechanical sugarcane planter.

Role: Advisor.

2004-2006 Gohari, M.

Design, development and evaluation of a variable –depth- tillage subsoiler.

Role: Supervisor

2004-2006 Tahmasebie, M.

Design and fabrication of a shear device for field tests and determination of relation between soil pre-compaction stress and shear strength.

Role: Joint supervisor

2004-2006 Rajabi Vand-chali, M.

Effect of vibration frequency and blade's rake angle of a vibrating sugar beet lifter on its draft and root mechanical damage.

Role: Joint supervisor

2004-2006 Shahrian, A.

Determination of hay and alfalfa rheological properties to design and develop an apparatus for recompressing bales of forage materials.

Role: Advisor

2004- 2006 Gholami, M.

Design and development of a pellet mill appropriate for a small poultry's feed production unit.

Role: Advisor.

2003-2005 Ataei, R.

Evaluation and comparison of power delivery efficiency of two wheel drive and front wheel assist 'MF 285 tractor' in plow performance with moldboard plow.

Role: Advisor.

2003-2005 Aabed, M.M.

Real time classification of apple using machine vision.

Role: Advisor.

2003-2005 Ardestani, S.M.A.

Effect of planter furrow opener and press wheel types on winter canola emergence.

Role: Supervisor.

2003-2005 Gafouri Varzaneh, H.

Design, development and evaluation of a cutter head unit for silo unloader.

Role: Joint supervisor.

2003-2004 Masieneh, I.A.

Effect of share's specifications on moldboard plow specific draft and soil infiltration rate at different moisture content.

Role: Joint supervisor

2003-2004 Golestani, A.

Performance evaluation of a rice thresher for technical modification.

Role: Advisor

2002-2004 Arefi, R.

Design, synthesis and evaluation of a gripping and handling mechanism.

Role: Joint supervisor

2002-2005 Amami, M.

Determination of Aerodynamic and Frictional Properties of Chopped Silage Corn.

Role: Joint supervisor

2002-2004 Lotfi, D.

Design, Development and Evaluation of a three-Point Hitch Dynamometer.

Role: Supervisor.

Moumenei, D.

Design and Development of a Semi-automatic Differential Lock for Massey Ferguson 285 Tractor.

Role: Advisor.

1998-1999 Rouzbeh, M.

Evaluation and Comparison of Energy Requirements in Different Tillage Methods for Corn Production.

Role: Advisor.

1997-1998 Asadi Khashoei, A.

Effect of different Planting and Crust-breaking Methods on Cotton Emergence.

Role: Joint supervisor.

1996-1997 Mossadeghi, M.R.

Compactibility of Lavark Soil as Affected by Soil Moisture Content and Farm Yard Manure.

Role: Advisor.

1996-1997 Taki, O.

Evaluation and Comparison of two Seed Distribution Patterns in Irrigated Wheat Farming Using Seeder-Rotivator.

Role: Advisor.

1995-1996 Sadeghneshad, H.R.

Draft Comparison of Vibrating and Non-vibrating Subsoiler.

Role: Joint supervisor.

### **C) Publications:**

#### **I. Refereed Journals:**

1. Salehian Dastjerdi, M., A. Hemmat. 2012. Effect of wetting and drying cycles on estimation of stress at compaction threshold of a fine textured soil using plate sinkage and confined compression Tests. Iranian Journal of Soil and Water Research (Submitted for publication on 04-04-2012).
2. Salehian Dastjerdi, M., A. Hemmat. 2011. Effect of wetting and drying cycles and water content on compactibility of fine and coarse

- textured soils of sugarcane fields. Water and Soil Science (Submitted for publication on 20-10-2011).
3. Naderi-Boldaji, M., R. Alimardani, **A. Hemmat**, A. Sharifi, A. Keyhani, N. Dolatsha, and T. Keller. 2012. Improvement and field testing of a combined horizontal penetrometer of soil water content and mechanical resistance. Soil & Tillage Research (in Press). (*ISI*)
  4. **Hemmat, A.**, A. Khorsandy and V. Shafaie. 2012. Soil failure mode in front of a multiple-tip horizontally-operated penetrometer as affected by depth/width ratio of its tip and shank. Turkish Journal of Agriculture and Forestry (in Press). (*ISI*)
  5. Ghorbani, Z., **A. Hemmat**, and A.A. Masoumi. 2012. Physical and mechanical properties of alfalfa grind as affected by particle size and moisture content. J. Agric. Sci. & Technol. (IRI). 14: 65-76 (*ISI*)
  6. Ghafori, H., **A. Hemmat**, A. M. Borghaee and S. Minaei. 2012. Physical properties and conveying characteristics of corn and barley seeds using a suction-type pneumatic conveying system. African Journal of Agricultural Research 6(27): 5972-5977. (*ISI*)
  7. **Hemmat, A.**, N. Nankali, N. Aghilinategh. 2012. Simulating stress-sinkage under a plate sinkage test using a viscoelastic 2D axisymmetric finite element soil model. Soil and Tillage Research 118: 107-116. (*ISI*)
  8. Ghorbani, Z., A.A. Masoumi, **A. Hemmat**, R. Amiri Chayjan and M.M. Majidi. 2011. Principal component modeling of energy consumption and some physical-mechanical properties of alfalfa grind. Australian Journal of Crop Science 5(8): 932-938. (*ISI*)
  9. **Hemmat, A.** and S.M. Ataie Ardestani. 2011. Enhancement of irrigated winter canola seedling emergence with creation of longitudinal cracks along the seed rows using suitable furrow opener and press wheel. Iranian Journal of Agricultural Engineering Research 12(2): 69-86. (in Farsi with English abstract).
  10. Aghilinategh, N., **A., Hemmat**, M. Sadeghi and M. Vafaeian. 2011. Soil bulk density, stress at compaction threshold and susceptibility to compaction as affected by the long-term incorporation of three organic amendments. Iranian Journal of Soil and Water Research, 42(1): 87-98. (in Farsi with English abstract).

11. Khorsandy, A., A. Hemmat, A. Masoumi and R. Amirfattahi. 2011. Development, construction and evaluation of a capacitance-based moisture sensor for on-the-go soil water measurement. Iranian Journal of Biosystems Engineering, 42(1): 1-7. (in Farsi with English abstract).
12. Aghilinategh, N., A., Hemmat, and M. Sadeghi. 2011. Assessing procedures for estimating pre-compaction stress of the soil amended with organic manures using data from plate sinkage and confined compression tests. Water & Soil Journal (J. Sci. & Technol. Agric. & Naur. Resour), 15 (55): 183-197. (in Farsi with English abstract).
13. Jafari, M., A. Hemmat, and M. Sadeghi. 2011. Comparison of coefficient of variation with non-uniformity coefficient in evaluation of grain drills. J. Agric. Sci. & Technol. (IRI) 13: 643-654 (*ISI*)
14. Sadeghi, M., H. Ashtiani Araghi, and A. Hemmat. 2010. Physico-mechanical properties of rough rice (*Oryza sativa* L.) grain as affected by variety and moisture content. Agric Eng Int: CIGR Journal 12 (3): 129-136.
15. Shirani, H., M.A. Hajabbasi, M. Afyuni and A. Hemmat. 2010. Effect of tillage system and organic manure on soil penetrometer resistance. Journal of Science and Technology of Agriculture and Nature Resurces, Water and Soil Science 14 (51): 141-156. (in Farsi with English abstract).
16. Gohari, M., A. Hemmat, and A. Afzal. 2010. Design, construction and evaluation of a variable-depth tillage implement equipped with a GPS. Iranian Journal of Biosystems Engineering. 41(1): 1-10. (in Farsi with English abstract).
17. Hemmat, A., N. Aghilinategh, and M. Sadeghi. 2010. Shear strength of remoulded samples of a calcareous soil as affected by long-term incorporation of three organic manures in central Iran. Biosystems Engineering 107: 251-261. (*ISI*)
18. Ashtiani Araghi, H., M. Sadeghi and A. Hemmat. 2010. Physical properties of two rough rice varieties affected by moisture content. International Agrophysics 24: 205-207. (*ISI*)
19. Jafari, M., A. Hemmat, and M. Sadeghi. 2010. Development and performance assessment of a DC electric variable-rate controller for use on grain drills. Computers and Electronics in Agriculture 73: 56-65. (*ISI*)

20. Masoumi, A., A. **Hemmat**, and A. Shahrian. 2010. Design, construction and evaluation of recompression machine for reducing hay bale volume. Iranian Journal of Biosystems Engineering 40(2): 111-119. (in Farsi with English abstract).
21. **Hemmat**, A., M. Nouri, and M.R. Akhanan Sarraf. 2010. Equipping a Messy Ferguson tractor (MF-285) with sensors for measuring performance parameters of tractor and implements in precision agriculture. Iranian Journal of Biosystems Engineering 40(2): 119-129. (in Farsi with English abstract).
22. **Hemmat**, A., N. Aghilinategh, Y. Rezainejad, M. Sadeghi. 2010. Long-term impacts of municipal solid waste compost, sewage sludge and farmyard manure application on organic carbon, bulk density and consistency limits of a calcareous soil in central Iran. Soil & Tillage Research 108: 43-50. (**ISI**)
23. Ghorbani, Z., A. A. Masoumi. and A. **Hemmat** 2010. Specific Energy Consumption for Reducing the Size of Alfalfa chops using a Hammer mill. Biosystems Engineering. 105: 34-40 (**ISI**)
24. Shirani, H., M.A. Hajabbasi, M. Afyuni and A. **Hemmat**. 2009. Effect of tillage system and organic manure on Bromide leaching under silage corn cultivation. Journal of Conservation Soil and Water Research, 16(4): 125-140. (in Farsi with English abstract). (in Press).
25. **Hemmat**, A., A. Khorsandy, A. Masoumi and V.I. Adamchuk. 2009. Influence of failure mode induced by a horizontally-operated single-tip penetrometer on measured soil resistance. Soil & Tillage Research, 105: 49-54. (**ISI**)
26. Shirani, H., M.A. Hajabbasi, M. Afyuni and A. **Hemmat**. 2009. Effect of tillage systems and organic manure on root morphology of corn. Journal of Water and Soil 23(1): 101-107. (in Farsi with English abstract).
27. **Hemmat**, A. 2009. Reduction in primary tillage depth and secondary tillage intensity for irrigated canola production in a loam soil in central Iran. J. Agric. Sci. & Technol. (IRI), 11: 275-288. (**ISI**)
28. Yousefi-Moghadam, S., S.F. Mousavi, B. Mostafazadeh-Fard, M.R. Yazdani and A. **Hemmat**. 2009. Effect of different puddling levels on moisture variations and bulk density of three dominant soil textures in paddy field of Guilan province. Water & Soil Journal



- (Mashhad Agricultural Sciences and Technology). 22(2): 382-393. (in Farsi with English abstract).
29. Mousavi, S.F., S. Yousefi-Moghadam, B. Mostafazadeh-Fard, A. **Hemmat** and M.R. Yazdani. 2009. Effect of puddling intensity on physical properties of a silty clay soil under laboratory and field conditions. Paddy and water Environment 7: 45-54.
  30. **Hemmat, A., M. Tahmasebi, M. Vafaeian and M.R. Mosaddeghi.** 2009. Relationship between Pre-compaction Stress and Shear Strength under Confined and Semi-confined Loadings for a Sandy Loam Soil. Biosystems Engineering. 102: 219-226 (**ISI**)
  31. Shirani, H., M.A. Hajabbasi, M. Afyuni and A. **Hemmat.** 2008. Simulation of potassium uptake by Barber-Cushman model in corn under tillage and farm yard manure treatments. Journal of Research in Crop Sciences 1(1): 85-98. (in Farsi with English abstract).
  32. Heidari Soltanabadi, M., M. Miranzadeh, M. Karimi, M. Ghasemi Varnamkhasti, and A. **Hemmat.** 2008. Effect of subsoiling conditions of strip tillage on soil physical properties and sunflower yield. Journal of Agricultural Technology 4(2): 11-19.
  33. Heidari Soltanabadi, M., M. Miranzadeh, M. Karimi, M. Ghasemi Varnamkhasti, and A. **Hemmat.** 2008. Effect of subsoiling on soil physical properties and sunflower yield under conditions of conventional tillage. International Agrophysics 22(4): 313-317. (**ISI**)
  34. **Hemmat, A., I. Ahmadi, and A.A. Masoumi.** 2008. Effect of Plowshare Type on Moldboard plow Performance under Different Water Content and Plowing Depth. Iranian J. Agric. Sci. 39(1): 87-97. (in Farsi with English abstract).
  35. Masoumi, A., A. **Hemmat** and M. Rajabi Vand-chal. 2008. Effects of rake (approach) angle of lifting shares and frequency of vibration on performance of a vibrating sugarbeet lifter. J. Sci. & Technol. Agric. & Naur. Resour. 12(2): 233-244. (in Farsi with English abstract).
  36. Tahmasebi, M., A. **Hemmat**, M. Vafaeian and M.R. Mosaddeghi. 2008. Determination of soil compaction strength (pre-compaction stress) with plate sinkage and uniaxial tests. J. Sci. & Technol. Agric. & Naur. Resour. 12(2): 245-255. (in Farsi with English abstract).

37. **Hemmat, A.** and V.I. Adamchuk. 2008. Sensor systems for measuring soil compaction: Review and analysis. *Computers and Electronics in Agric.* 63: 89-103. (*ISI*)
38. **Hemmat, A.,** V.I. Adamchuk and P. Jasa. 2008. Use of an instrumented disc coulter for mapping soil mechanical resistance. *Soil & Tillage Res.* 98(2): 150-163. (*ISI*)
39. Mosaddeghi, M.R., A.J. Koolen, M.A. Hajabbasi, **A. Hemmat,** T. Keller. 2007. Suitability of pre-compaction stress as the real critical stress of unsaturated agricultural soils. *Biosystems Engineering* 98: 90-101. (*ISI*)
40. Heidari-Soltan Abadi, M., and **A. Hemmat.** 2007. Effect of blade distance from the agitator and output rate on rice quality in a modified blade-type milling. *J. Sci. & Technol. Agric. & Naur. Resour.* 11(1): 135-146. (in Farsi with English abstract).
41. Lotfi, D., **A. Hemmat,** and M.R. Akhanan Sarraf. 2007. Development and evaluation of a three-point hitch dynamometer and a fifth wheel for mounted implement draft and tractor speed measurements. *J. Sci. & Technol. Agric. & Naur. Resour.* 11(1): 147-163. (in Farsi with English abstract).
42. **Hemmat, A.,** I. Ahmadi, A. Masoumi. 2007. Water infiltration and clod size distribution as influenced by ploughshare type, soil water content and ploughing depth. *Biosystems Engineering* 97: 257-266. (*ISI*)
43. Mosaddeghi, M.R., A.J. Koolen, **A. Hemmat,** M.A. Hajabbasi, P. Lerink. 2007. Comparisons of different procedures of pre-compaction stress determination on weakly structured soils. *Journal of Terramechanics* 44:53-63 (*ISI*)
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## **II. Conference Papers:**

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## **B. National Conferences:**

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