



**TAGEM**  
R&D AND INNOVATION

INTERNATIONAL AGRICULTURAL RESEARCH  
AND TRAINING CENTER / İZMİR



## GÜLAY YILMAZ, PhD

### Agricultural Engineer

#### EDUCATION

- PhD**  
1995-2001 Ege University  
Soil Science
  - MSc**  
1991-1995 Ege University  
Soil Science
  - Bachelor's Degree**  
1987-1991 Ege University  
Faculty of Agriculture
- LANGUAGE** English YDS/71

#### CAREER

- 2011-..., Researcher, International Agricultural Research and Training Center- İZMİR
- 2005 - 2011 / Researcher, Menemen Soil and Water Resources Research Institute
- 2000 – 2005, Researcher, Menemen Research Institute of Rural Services
- 1996 – 2000, Research Assistant / Ege University Faculty of Agriculture, Department of Soil Science

#### ABOUT ME

She was born in 1969 in Sandıklı. She completed his undergraduate degree in 1991 and her master's degree in 1995 at Ege University, Faculty of Agriculture, Department of Soil Science. She worked as a Research Assistant in the Department of Soil Science at Ege University, Faculty of Agriculture between 1996-2000. She started to work as an Agricultural Engineer at the Menemen Research Institute of Rural Services in 2000 and completed her doctorate in the field of Soil and Water Conservation in 2001. She still works as a research engineer in the Department of Climate Change and Agricultural Ecology at the International Agricultural Research and Training Center.

Fields of study; soil and water conservation, soil conditioners, erosion prediction models, use of RS and GIS techniques in erosion studies, erosion risk mapping and soil conservation planning, sedimentation, agricultural hydrology, agricultural meteorology.

#### CONTACT

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### ▪ **PROJECTS**

#### ▪ **Projects Conducted**

1. Effect of Semi-Circular Micro Catchment Water Harvesting Technique and Applications that Improve the Soil Water Holding Capacity on Growth of Olive Sapling, (TAGEM /TSKAD /14 /A13 /P01 /02), Project Leader.
2. Determination of the Climatic Fluctuations Effects on Olive Trees with the Dendroclimatological Research in Izmir Kemalpaşa Region, TAGEM, 2014-2021, Researcher.
3. Determination of the Temporal and Spatial Variation of Soil Moisture and Drought Analysis in Susurluk-Kocadere Sub-Basin, TAGEM, 2014-2019, Researcher.
4. Determining potential soil erosion using RUSLE model in Balıkesir- Bigadiç Kocadere Creek Watershed and planning the soil conservation, (UTAEM 2015-02) Project Leader.
5. Precipitation and runoff characteristics of the watershed of Balıkesir-Bigadiç-Kocadere creek., TAGEM, 1987-2012, Project Leader.
6. Monitoring and evaluating temporal and spatial changes of land degradation at Torbalı region by remote sensing and geographical information system techniques, TAGEM-BB-TOPRAKSU-2011/116, Researcher.
7. Environmental Technologies and The Phenomenon of Desertification. 105Y352 Bilateral Project, Researcher.
8. Determining of the potential erosion risk of Karaburun Peninsula, using RS and GIS techniques. Ege University Scientific Research Project, (2004-BİL-012) Researcher.
9. The effects and using of Valex product residues to water erosion. Ege University Scientific Research Project (2001-ZRF-22) Researcher.
10. Rainfall and runoff characteristics of Çanakkale – Bayramiç Eğridere Creek Watershed. Menemen Research Institute of Rural Services. Researcher.
11. The effect of Polyacrylamide (PAM) on erosive properties of soils in laboratory conditions. Ege University Scientific Research Project (96-ZRF-019) Researcher.

#### ▪ **Ongoing Projects**

1. Determination of Erosion Risk in Basin Scale, and Monitoring of Sediment and Organic Carbon Sources by Fingerprinting Technique, TAGEM, 2020-2022, Project Leader
2. Analysis and Modeling of the Effects of Climatic Variability on Coastal Aegean Olive Growing Areas, TAGEM, 2022-2025, Researcher.
3. Applications to Support Olive Cultivation by Improving Water Harvest and Soil Structure (Provincial Directorate of Agriculture, Extension Project / Researcher, 2022-2023)
4. LEarning and action alliances for NexuS EnviromentS in an uncertain future (LENSES), European Union Project, 2021-2024, Researcher.
5. Evaluation of Climate Change Resilience of Agricultural Producers in Izmir Province, TAGEM, 2021-2023, Researcher.
6. The Effect of Microcatchment Water Harvesting Technique on Irrigation of Olive Trees, TAGEM, 2020-2024, Researcher.



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### ▪ **PUBLICATIONS**

### ▪ **INTERNATIONAL ARTICLES AND PAPERS**

### ▪ **Articles Published in International Journals**

1. Ben-Hur, M., G. Yolcu (Yılmaz), H. Uysal, M. Lado, A. Paz (2009). Soil Structure changes: Aggregate size and soil texture effects on hydraulic conductivity under different saline and sodic conditions. Australian Journal of Soil Research, volume: 47, number: 7–6, November, İsrail

### ▪ **International Papers, Seminars, etc.**

1. Yılmaz, G., C.O. Acar, H. Uysal, N. Özden (2012). Rainfall Erosivity Factor (R) Values Determined from Daily Rainfall Data and Its Annual Distribution in Balıkesir-Bigadiç Kocadere Creek Watershed. 8th International Soil Science Congress on "Land Degradation and Challenges in Sustainable Soil Management", 15-17 May, Çeşme-İzmir.
2. Kurucu, Y., Ü. Altınbaş, H. Uysal, M. Bolca, T. Esetlili, F. Özen, G. Yönter, N. Özden, H. Karakurt, G. Yılmaz, N. Altun (2009). Creating potential erosion risk map of the Karaburun Peninsula by Geographical Information System and Remote Sensing Technique, The Symposium on Sustainable Development in Southeast Europe, Namık Kemal University Conference Hall, 16–18 June, Tekirdağ –Türkiye.
3. Uysal, H., G. Yönter, G. Yolcu (2004). Su erozyonuna karşı Meşe Palamutu atıklarının kullanımı ve etkileri. (Poster), Sürdürülebilir Kalkınma için doğal kaynakların Yönetimi Konulu Uluslararası Toprak Kongresi, Türkiye Toprak İlimi Derneği & Atatürk Üniversitesi, 7-10 Haziran, Erzurum.
4. Uysal, H., A. Taysun, G. Yolcu, G. Yönter (1998). The effects of polyacrylamide(PAM) on some soil properties related to erosion. M. Şefik Yeşilsoy International Symposium on Arid Region Soil. 21–24 Sept. Menemen-İzmir
5. Yılmaz, G., L. Aruğaslan, K. Şahin Taysun, (2019) Determination of Soil Erosion and Sediment Yield with RUSLE and MUSLE Models in Watershed Scale. International Congress on Agriculture and Forestry Research (AGRIFOR), 8-10 April, Marmaris / Turkey
6. Yüceerim, G., G. Yılmaz, M. Etöz 2019. Measurement and Assessment of Soil Moisture at Basin Scale, Oral presentation, HASAT International Agriculture and Forest Congress, 21-23 June 2019, Ankara.
7. Şahin-Taysun, K., A. Taysun, G. Yılmaz, ve N. Özden, 2019. Environmental Evaluation of Change in Land Use / Cover in the Selected Area in Torbalı and Kemalpaşa Districts of İzmir Province, 13th National & 1st International Environmental Engineering Congress, Gebze Technical University p:265-268, 10-12 October, Gebze, Kocaeli.
8. Yılmaz, G., N. Özden, E. Bora, G. Yüceerim, (2017). Estimation of soil erosion within a small watershed in the mountainous region of Balıkesir-Bigadiç using RUSLE and GIS. 5th International Participation Soil and Water Resources Congress, Proceedings Book-v: 1, p: 630-641, 12-15 September, Kırklareli / Turkey
9. Kayam, Y., G. Yılmaz, M. Etöz, G. Yüceerim (2017). Comparison of some drought indices and climatic analyzes; Menemen's case study. 5th International Participation Soil and Water Resources Congress, Proceedings Book-v: 1, p: 579-596, 12-15 September, Kırklareli / Turkey
10. Etöz, M., G. Yılmaz, G. Yüceerim, Ö. Dursun (2017). A Survey About the Response of Olive Phenology Against to Seasonal Deviations on Climate. 5th International Participation Soil and Water Resources Congress, Proceedings Book, p:: 132 , 12-15 September, Kırklareli / Turkey.



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11. Yüceerim, G., G. Yılmaz, M. Etöz, C. O. Acar (2017). Analysis of Drought at Different Timescales by Standardized Rainfall Index in Kocadere Basin. 5th International Participation Soil and Water Resources Congress, Proceedings Book, p: 132, 12-15 September, Kırklareli / Turkey
12. Şen, S., G. Yılmaz, T. Topdemir, Ü. Alkan (2017). The Effect of Semi - Circular Micro-Catchment Water Harvesting Technique with Some Applications on the Improvement of Soil Water Holding Capacity for Olive Sapling Development. 5th International Participation Soil and Water Resources Congress, Proceedings Book, p: 132, 12-15 September, Kırklareli / Turkey
13. Yılmaz, G., L. Aruğaslan, (2015). Sediment Measurement and Assessment at the Subcatchment Level; The Case of Kocadere Creek Catchment. 4th International Attendant Congress on Soil and Water Resources, 1-4 September 2015, Kahramanmaraş.
14. Yılmaz G., E. Bora, L. Aruğaslan (2014). Spatial, Temporal Variation of the Rainfall Amounts and Intensity in Balıkesir - Bigadiç Kocadere Creek Catchment (poster). 2nd International Attendant Symposium on Drought and Desertification, 16-18 September, Konya

### 15. NATIONAL ARTICLES AND PAPERS

#### 16. Articles Published in National Journals

1. Yılmaz, G., L. Aruğaslan, G. Yüceerim 2021., Estimation of Sediment Yield Based on Field Measurements and MUSLE Model in Kocadere Watershed. Soil Water Journal, Special Issue: 11-18. <https://dergipark.org.tr/tr/pub/topraksu/issue/59483/700706>
2. Yüceerim, G., G. Yılmaz, M. Etöz, C.O. Acar 2019. Drought Analysis at Different Time Scales with Standardized Precipitation Index in Kocadere Basin, Soil Water Journal, Special Issue: 70-76. <https://dergipark.org.tr/tr/pub/topraksu/issue/50450/655270>
3. Şen, S., G. Yılmaz, T. Topdemir, Ü. Alkan 2019. Effect of Micro Catchment Water Harvesting Technique and Some Applications that Improve the Soil Water Holding Capacity on Growth of Olive Sapling. Soil Water Journal, special Issue: 122 – 129. <https://dergipark.org.tr/tr/pub/topraksu/issue/50450/655561>.
4. Yılmaz, G., H. Uysal (2010) The effects of PVA and PAM application on runoff and soil loss. The Journal of Agricultural Faculty of Ege University, vol: 47, no:2, ISSN: 1018-8851.



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- **National Papers, Seminars, etc.**

1. Yılmaz G., G. Yüceerim, M. Deveciler (2014). Observed changes in precipitation and flow of Kocadere Creek Watershed in the process of climate change (poster). 12th National Symposium on Irrigation and Agricultural Structures, 21-23 May, Tekirdağ.
2. Yüceerim, G., G. Yılmaz (2014). Soil Moisture Monitoring Methods Which Are an Important Parameter for the Models and Simulations (poster), 12th National Irrigation and Agricultural Structures Symposium, 21-23 May 2014, TEKİRDAĞ.
3. Deveciler M., G. Yılmaz, G. Yüceerim, C.O. Acar (2012). Observed changes and trends at maximum, minimum and average air temperatures with precipitation sequences of Kocadere Creek Watershed in the process of climate change. Ege Agricultural Research Institute, Knowledge exchange meeting papers of horticulture groups, p.: 17-25, 10-12 July, İzmir.
4. Gündüz, M., N. Korkmaz, G. Yılmaz (2009) Determination of irrigation schedule in vineyard irrigated with drip irrigation. 7th Symposium on Viticulture and Technologies, 5–9 October, Manisa.
5. Uysal H., G.Yönter, G. Yılmaz (2009). The effects of dry PAM (polyacrylamide) application to soils on soil loss, runoff and infiltration. The First National Symposium on Drought and Desertification, 16–18 June, Konya
6. Taysun, A., N. Özden, K. Şahin Taysun, G. Yılmaz, A. Vassilopoulos, N. Evelpidou (2009). Causes and evolution of sand dune activity in Manisa Akselendi Plain, and environmental assessment. The First National Symposium on Drought and Desertification, 16–18 June, Konya
7. Acar, C. O., G. Yılmaz (2009). Analysis of chosen precipitation and flow for watershed average unit hydrograph; Exaple of Balıkesir Kocadere. 3th National Snow Congress, 17–19 February, Erzurum
8. Acar, C. O., G. Yılmaz (2009). Analysis of Kocadere Creek Watershed's long term flow and precipitation in different time periods. 3th National Snow Congress, 17–19 February, Erzurum
9. Acar C.O., G. Yolcu, K. Üner (2008). The importance of some climate parameters on agricultural production: The example of Menemen. Ege Agricultural Research Institute, Knowledge exchange meeting papers of field crops groups 2008, publication number: 133, 14–17 October, Menemen-İzmir
10. Yolcu G., C. O. Acar (2008). Predicting soil erosion by water. Ege Agricultural Research Institute, Knowledge exchange meeting papers of horticulture groups 2008, publication number: 132, June, Menemen-İzmir, p.: 24–26
11. Acar, C. O., G. Yolcu, K. Üner (2007). Some climate parameters at long term and these possible effects on agricultural production. Ege Agricultural Research Institute, Knowledge exchange meeting papers of horticulture groups 2007, publication number: 130, Menemen-İzmir, p.:194–214
12. Taysun, A., H. Uysal, G. Yolcu, G. Yönter, K. Şahin Taysun, K. Mollenhauer (2007). Importance and evaluation of soil erodibility factors (K) determined in different seasons by using rain simulator in land condition. 3th Symposium on National Water Engineering, 10–14 September, Gümüşdör-İzmir, p.: 199–208



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13. Yolcu, G., K. Şahin Taysun (2005). Erosion effects on arable land and precautions. Ege Agricultural Research Institute, Knowledge exchange meeting papers of field crops groups 2005, publication number: 120. 6-8 September, Menemen-İzmir, p.: 248-262.
14. Şahin Taysun, K., G. Yolcu (2005). Water and wind erosion in arable land. Ege Agricultural Research Institute, Knowledge exchange meeting papers of horticulture groups 2005, publication number: 119. 14-16 June, Menemen-İzmir, p.: 29-46.
15. Aykanlı, N., C. O. Acar, G. Yolcu (2002). Investigation of rainfall and runoff characteristics at Balıkesir-Bigadiç-Kocadere Creek Watershed. (Poster), Symposium of Conservation, Development, and Management of Soil and Water Resources in Water Basins, Mustafa Kemal University Faculty of Agriculture, 18-20 September, Antakya/Hatay, p. 652-655.
16. Taysun, A., H. Uysal, G. Yönter, G. Yolcu, B. Eryüce (1999). The importance of strip cropping and terracing on Büyük Menderes Basin Soils. 4th Symposium of Great Menderes Basin's Agricultural and Environmental Problems, 9-10 September, Söke, Aydın
17. Uysal, H., A. Taysun, G. Yolcu, G. Yönter (1998). The problems of Aegean Region Soils and solving proposals. (Compilation), Aegean Region First Agriculture Congress, 7-11 September, Aydın
18. Uysal, H., A. Taysun, G. Yolcu, G. Yönter (1996). The sizes of erosion damage in Gediz Basin. 2nd Symposium on Agricultural, Erosion and Environmental problems of Gediz Basin, 2-4 December, Manisa.
19. Uysal, H., A. Taysun, G. Yönter, G. Yolcu (1996). The Effect of polyvinylalcohol (PVA) on erosive properties of soils. 1th Uludağ Environmental Engineering Symposium, 24-26 June, Bursa

- **OTHER PUBLICATIONS**

- **Ph.D. Thesis, Master Thesis, Reports, Books etc.**

1. Yolcu, G., (2001). The effect of some polymers on runoff and soil loss together with soil properties in laboratory conditions. PhD Thesis, Ege University Graduate School of Natural and Applied Science, Bornova, İzmir
2. Yolcu, G., (1995). The research on relationships between the value of percolation and aggregate stability of different soils. MSc. Thesis, Ege University Graduate School of Natural and Applied Science, Bornova, İzmir.
3. Yılmaz G., K. Şahin Taysun, C.O. Acar N. Özden, L. Aruğaslan, Z.L. Bilir, A. Taysun, H. Uysal (2015). Determining potential soil erosion using RUSLE model and planning the soil conservation in Balıkesir - Bigadiç - Kocadere Creek Watershed. General Directorate of Agricultural Research and Policy, (UTAEM 2015-02), (Project Final Report), İzmir, TURKEY.
4. Yılmaz G., İ. Abalı, N. Aykanlı, C.O. Acar (2013). Precipitation and Runoff Characteristics of the Watershed of Balıkesir-Bigadiç Kocadere Creek, General Directorate of Agricultural Research and Policy, (UTAEM 2013-05), (Final Report), Menemen-İzmir
5. Demirkıran, O., İ. Oğuz, E. Kardeş, K. Kuşvuran, G. Yılmaz (2013). Sediment yield researches at water basins, General Directorate of Agricultural Research and Policy, (UTAEM 2013-05), December-2013, Ankara.



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6. Şahin Taysun, K., N. Özden, G. Yılmaz, C.O. Acar, E. Nurlu A. Taysun (2011). Monitoring and Evaluation of Temporal and Spatial Change of Land Degradation in the Sample Area of Torbalı and Kemalpaşa Districts of İzmir with the Help of Remote Sensing and Geographical Information System Techniques. General Directorate of Agricultural Research (TAGEM-BB-TOPRAKSU-2011/116), (Final Report), Menemen Soil and Water Resources Research Institute
7. Aykanlı, N., C.O. Acar, G. Yolcu (2001). Rainfall and runoff characteristics of Çanakkale – Bayramiç Eğridere Creek Watershed. General Directorate of Rural Services, Menemen Research Institute of Rural Services, (Final report) Publication number: 119.
8. Uysal, H., A. Taysun, Ü. Altınbaş, G. Yolcu (1998). Soil and soil erosion. Urbanization, environment and migration problems of İzmir and precautions. Vol:2, p. 69-75, İzmir

### • **Membership, Training, Course, Meeting, Congress, Symposium and Other Activities**

1. Distance Learning on “The Effects of Climate Change on Agriculture and Measures to be Taken in the Adaptation Process, Drought and Its Effects, Water Harvesting Techniques” Distance education, TAGEM/UTAEM, 07.05.2020.
2. “Arid and Semi-Arid Area” training. ÇEM/Ministry of Forestry and Water Affairs, 11-14.04.2018
3. “Course on “Modeling Water Allocation in WEAP”. Soil and Water Resources Res. Inst. & Future Water-Holland, 16-18. 01.2007
4. “Turkey's Soil Resources Studies and Database Project General Training Program” Ministry of Agriculture and Rural Affairs, General Directorate of Rural Services, Department of Personnel and Training, Menemen-İzmir, 14.06.2004–23.07.2004
5. Remote Sensing and Geographic Information System Applied Basic Course. Ege University Faculty of Agriculture, Department of Soil, Bornova/İzmir. 09-06.2003-14.06.2003
6. “Irrigation Water Resources in Arid& Semi-Arid Region and E.I.A. for Sustainable Development” – training course, JICA. JICA (Japanese International Cooperation Agency), Japonya, 08.07.2002-22.11.2002
7. Scholarship for 6 months within the scope of research on “Soil structure changes effects on hydraulic conductivity under different saline and sodic conditions”. Volcani Center Institute of Soils and Water, İsrail, 01.03.1999-01.09.1999
8. “Advanced International Course on Irrigation and Soil Management”. Volcani Center Institute of Soils and Water, İsrail, 07.10.1997-02.12.1997