CHAPTER 5

WHEAT AGRICULTURE AND APPLIED OF CONSERVATION TILLAGE METHODS IN ADAMA

Serkan ÖZDEMİR¹ Zeliha Bereket BARUT¹

1. INTRODUCTION

With the environmental awareness that developed after the 1970s, alternative methods have been developed that minimize the field traffic and work the soil without turning it inside out. The main criterion in this method, which is defined as conservation tillage, is that the field surface is covered with at least 30% plant residue (Köller, 2003; Hobbs and Gupta, 2004; ASABE, 2013).

Purpose and benefits of conservation tillage systems;

- Prevents wind and water erosion,
- Protects and increases the amount of organic matter,
- It reduces moisture loss in the soil,
- Field traffic is minimized,
- Stable and sustainable product yield,
- It saves time,
- Less fuel consumption occurs and provides energy savings,
- Prevents deadly damage caused by burning stubble (Barut, 2009; Kassam and Friedrich, 2012).

There are many studies on the conservation tillage methods

¹ Cukurova University, Faculty of Agriculture, Agricultural Machinery and Technologies Engineering *Corresponding Author: cansa.serkanozdemir@gmail.com

tions. More importantly, it is a tillage management that is not sustainable in the long run. In this context, it should be aimed to improve environmental factors, increase productivity and reduce production costs by developing an efficient production technique of conservation tillage method in wheat agriculture. For wheat cultivation in Adana region, it is necessary to switch from conventioal methods to conservation tillage and reduced tillage methods. The academic studies conducted in the region show that it is of great importance for the development and implementation of conservation tillage methods to be applied in wheat farming for the Adana region.

REFERENCES

- Acar, M., Celik, I., Gunal, H., 2017. Effects of long-term tillage systems on soil water content and wheat yield under mediterranean conditions, Journal of New Theory, vol.17, pp.98-108.
- Aryal, J.P., Sapkota, T.B., Jat, M.L., Bishoni D.K, 2015. On-Farm Economic And Environmental Impact Of Zero-Tillage Wheat: A Case Of North-West India, Experimental Agriculture , Volume 51 , Issue 1 , pp. 1 16.
- ASABE, 2013. Terminology for Soil Engaging Components for Conservation Tillage Planters, Drills, and Seeders. ASABE Standards Joseph, MI, USA., S477, 364-369.
- Aykanat, S., Karaağaç, H.A., Barut, H., Sevilmiş, U., 2019. Farklı Toprak İşleme ve Ekim Yöntemlerinin Buğdayda Bazı Agronomik Özellikler Üzerine Etkisi, Uluslararası Doğu Akdeniz Tarımsal Araştırma Enstitüsü Dergisi, 2(2):136-144.
- Aykanat, S., Barut, H., 2018. Buğday Tarımında Farklı Ekim Yöntemleri ve Sulamanın Teknik Yönden Karşılaştırılması, Uluslararası Doğu Akdeniz Tarımsal Araştırma Enstitüsü Dergisi.
- Barut, Z B., 2006. Ekim Makinaları, Ed. Serdar Öztekin Tarım Makinaları 2, Nobel Kitapevi Adana, , s.408.
- Barut, Z.B. and Celik, I., 2010. Different Tillage Systems Affect Plant Emergence, Stand Establishment and Yield in Wheat-Corn Rotation, Philippine Agricultural Scientist, 93(4):392-398.
- Barut, Z.B. and Celik, I., 2017. Tillage Effects on Some Soil Physical Properties in a SemiArid Mediterranean Region of Turkey, Chemical Engineering Transactions vol 58.
- Barut, Z.B., Celik, I., Turgut, M.M., 2010. Buğday Tarımında Farklı Toprak İşleme Sistemlerinin Toprağın Bazı Fiziksel Özelliklerine Etkisi, Tarım Makinaları Bilimi Dergisi, 6(4):237 246.

- Celik, I., Günal, H., Acar, M., Acir, N., Barut, Z.B., Budak, M., 2019. Evaluating the long-term effects of tillage systems on soil structural quality using visual assessment and classical methods, Soil Use and Menagement. 36:223–239.
- Celik, I., Günal, H., Acir, N., Barut, Z.B., 2021. Soil quality assessment to compare tillage systems in Cukurova Plain, Turkey. Soil & Tillage Research, 208(104892):104892.
- Celik, I., Günal, H., Acar, Gok, M., Barut, Z.B., Pamiralan, H., 2017. Long-term tillage and residue management effect on soil compaction and nitrate leaching in a Typic Haploxerert soil, International Journal Of Plant Production, 11(1):131-149.
- Celik, I., Günal, H., Acar, M., Acir N., Barut Z.B., Budak, M., 2019. Evaluating the long-term effects of tillage systems on soil structural quality using visual assessment and classical methods, Soil Use and Menagement.
- Hobbs, P.R., Gupta, R.K., 2004. Problems and challenges of no-till farming for the rice-wheat systems of the Indo-Gangetic plains in South Asia. In: Lal, R., Hobbs, P., Uphoff, N. and Hansen, D.O. (eds) Sustainable Agriculture and the Rice-Wheat System. Ohio State University, Columbus, Ohio, pp. 101–119; Marcel Dekker, New York, pp. 101–121.
- Irmak, S., Semercioğlu, T., 2012. Çukurova Bölgesi'nde Yetiştirilen Bazı Buğday (Triticum Spp.) Çeşitlerinde Toprak-Bitki Selenyum İçeriği Arasındaki İlişki, Tarım Bilimleri Dergisi, 2: 19 23.
- Kassam, A., and Friedrich, T., 2012. An ecologically sustainable approach to agricultural production intensification: Global perspectives and developments. Field Actions Science Reports. The Journal of Field Actions Science Reports. Special Issue 6: 1-6.
- Köller, K., 2003. Conservation tillage-technical, ecological and economic aspects. Koruyucu Toprak İşleme ve Doğrudan Ekim Çalıştayı, ss.9-34, 23-24 Ekim, Bornova, İzmir.
- Moyer, J.R., Roman, E.S, Lindwal, C.W, Blackshaw R.E., 1994. Weed management in conservation tillage systems for wheat production in North and South America, Crop Protection, 13(4):243-259.
- Mujdeci, M., Sarıyev, A., Polat, V., 2005. Buğday (Triticum aestivum L.) Veriminin Matematiksel Modellenmesi, Tarım Bilimleri Dergisi, 11 (4): 349-353.
- Schillinger, W.F., 2001. Minimum and Delayed Conservation Tillage for Wheat–Fallow Farming, Soil Science Society of America Journal, 65(4):1203-1209.
- T.C. Tarım Ve Orman Bakanlığı Adana İl Tarım Ve Orman Müdürlüğü (URL: http://https://adana.tarimorman.gov.tr/)
- TMO, 2021. 2020 Yılı Hububat Sektör Raporu, https://www.tmo.gov.tr/ Upload/ Document/sektorraporlari/hububat2020.pdf
- TOB, 2022. Adana İl Tarım Ve Orman Müdürlüğü, https://adana.tarimorman.gov.tr/)
- TÜİK, 2020. Türkiye İstatistik Kurumu. Ankara . (URL: http://www. tuik. gov. tr)
- $T\ddot{U}\dot{I}K,\,2021.$ Türkiye İstatistik Kurumu. Ankara . (URL: http://www. tuik. gov. tr)