INTRODUCTION

Unsustainable farming practices, including soil tillage intensification and heavy use of agrochemicals, have an adverse impact on natural resources, biodiversity and the environment. Therefore, there is a need to improve actual agricultural practices. The introduction of cover crops and living mulches in crop rotations could be an efficient tool in order to stabilize crop yields, improve soil characteristics, and reduce external agricultural inputs such as herbicides and fertilizers. The overall objective of this experiment is to improve understanding and use of subsidiary crop in conservation agriculture systems under the Mediterranean environment of central Italy.

I CYCLE OF MEE (2012/2013)

MEE Field experiment was set up in September 2012 at the experimental farm of Tuscia University (UNITUS). A 2-year durum wheat – tomato sequence was foreseen. In the first year of study the treatments consisted in: (i) four durum wheat – cover sequences (wheat + hairy vetch; wheat + avena strigosus; wheat/subclover + subclover; wheat + fallow); (ii) three nitrogen fertilization levels to the wheat (0%, 50%, and 100% of total nitrogen recommended dose).

The durum wheat (Triticum durum Desf., cv. Claudio) was sown in October at the seeding rate of 450 and 300 seeds m$^{-2}$ in pure wheat and in intercropping with subclover, respectively. The subclover (Trifolium subterraneum L., cv. Campedas) was sown at the same time of wheat in strips 15 cm wide at the seeding rate of 15 kg ha$^{-1}$ (Fig. 2). The phosphate fertilization was made with 80 kg ha$^{-1}$ P2O5 as superphosphate applied at seeded preparation, while the nitrogen fertilization was made with 0, 50, and 100 kg of N ha$^{-1}$ applied twice at the beginning of the tillering stage in December and at the beginning of stem elongation in March (50% + 50% of total nitrogen, respectively).

II CYCLE OF MEE (2013/2014)

The experiment was set up in September 2013. The durum wheat and subclover were sown in November 2013 adopting the same procedures reported for the first cycle of Multi Environment Experiment. Wheat and subclover seedlings emerged contemporaneously in November, 25 (about two weeks after wheat sowing). Both durum wheat and subclover species grow regularly without problems. At the moment, durum wheat is at the stem elongation stage, while subclover is in full vegetative stage.