Weed free 
Same row intercropping
Wide row intercropping
Narrow row intercropping
Sole crop

**Aim:** To find a suitable spatial arrangement for the subclover living mulch-durum wheat system in order to provide a high cereal grain yield and a sufficient subclover reseeding after wheat harvesting.

**MATERIALS & METHODS**

The study was carried out at the experimental farm of Tuscia University from 2011 to 2013. Field experiments included:

(i) 5 cropping systems including the monoculture of durum wheat and subclover and three different durum wheat/subclover intercropping spatial arrangements (Fig. 1);

(ii) 2 nitrogen fertilization levels (0 and 100 kg ha\(^{-1}\) of N, hereafter called N0 and N100, respectively);

(iii) 2 weed managements [weed-free (WF) and weedy (We)].

The wheat planting density was 400 seeds m\(^{-2}\) regardless the cropping system, while the subclover planting density was 600 seeds m\(^{-2}\) in pure stand, and 300 seeds m\(^{-2}\) in the intercropped treatments.

**RESULTS & DISCUSSION**

The total productivity of the intercropped systems was always higher than pure crops (RBT > 1) thus resulting in higher total production per unit area and greater land-use efficiency (Table 1). The narrow row intercropping showed a wheat grain yield similar to the sole wheat crop (Table 2). Wheat aggressivity was highest in same row intercropping and lowest in wide row intercropping.

The subclover living mulch showed a progressive reduction of the aboveground biomass and seed production compared to the sole subclover due to its increased proximity with wheat (Table 3). However, in the autumn of the second year, the number of regenerated subclover seedlings was suitable for regenerating a new ground cover regardless spatial arrangement.

**CONCLUSION**

This study shows that when subclover is used as living mulch for durum wheat, a moderate separation of the two species, such as that obtained when the wheat was sown in rows 10 cm apart from the subclover rows, seems to be the best strategy for maximizing grain yield and ensuring a satisfactory subclover reseeding.