

SOYBEAN YIELD AND FEED VALUE IN A SRC POPLAR ALLEY-CROPPING SYSTEM: PRELIMINARY RESULTS FROM A FIELD TRIAL IN ITALY



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INTRODUCTION AND AIMS

Silvoarable systems can reduce impacts of agricultural practice and increase agroecosystems services in the Mediterranean [1]. Nonetheless, farmers are reluctant to implement agroforestry systems because of the potential loss of gross production due to: (i) the reduction of arable surface and (ii) the risk of lower crop yield due to the competition for resources with trees [2].

The aims of this study are: (i) to assess the productivity of soybean in an alley-cropping system (AF) and (ii) to determine soybean productivity and feed value according to the position in the alley (West, Mid West, Centre, Mid East, East).

METHODOLOGY

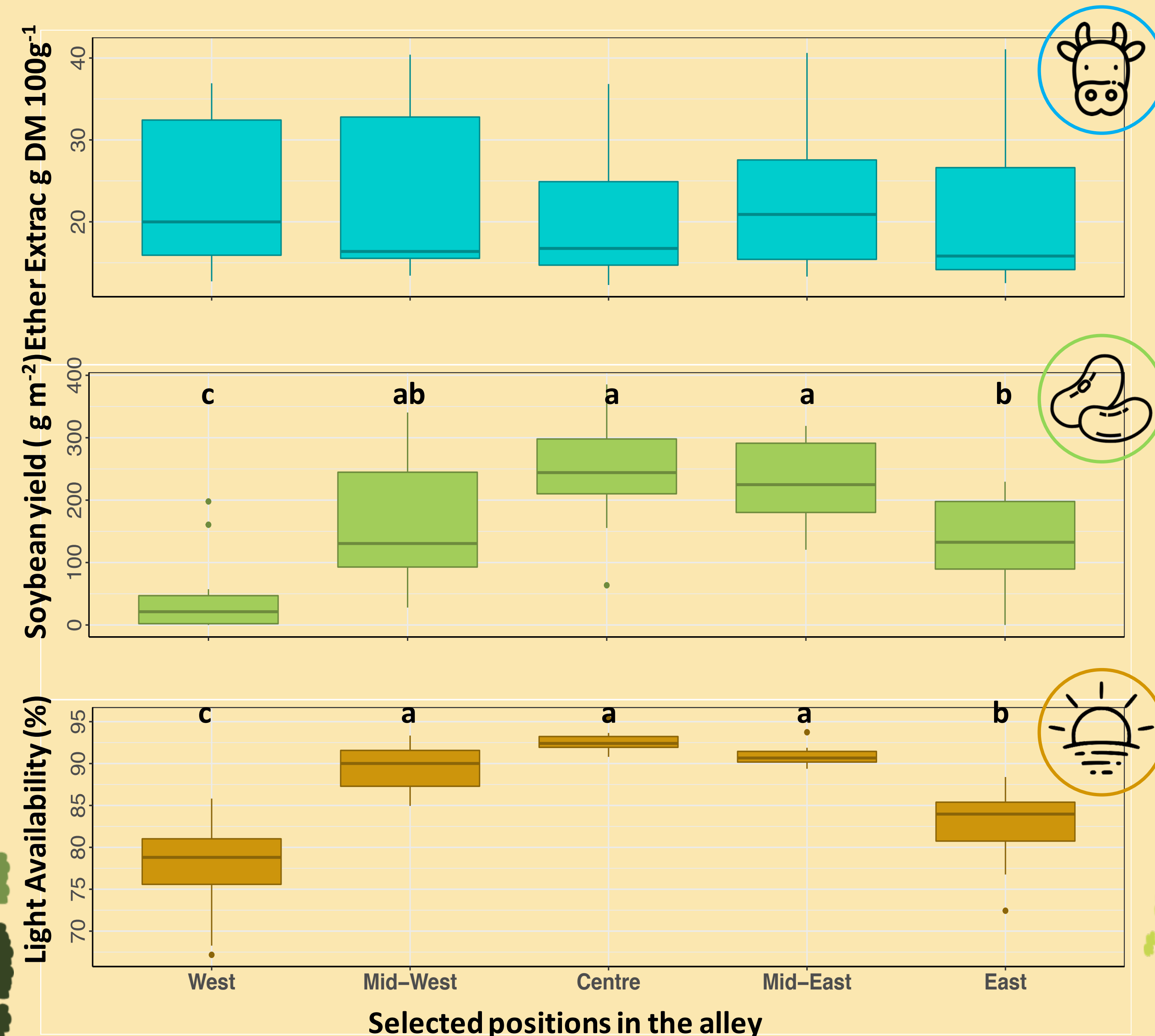
The experiment is located in **Pisa (Italy)** 3 m a.s.l. on a loam to clay-loam soil with 7.6 pH. Rows of short rotation coppice (2yrs cut cycle) **poplar are spaced 13.5 m** and **North-South oriented**.

Soybean was sown the **12 June 2018** with 50 seed m². During the soybean growth period, **rainfall was 90 mm** and the **average mean temperature was 22.9 °C**.

RESULTS AND DISCUSSIONS

The average **total light transmittance** varied among the alleys **according to the position** in the transect ranging **from 78 % to 93% in West position (2.5 m from the tree row) and Center position (6.75 m from the tree row)**, respectively. Moreover, a **significant difference** was observed between **West and East position (83%)**.

Grain yield varied significantly according to the position in the alley ranging from **46 to 247 g DM m⁻²**, from West to Center position, respectively. **Yield in East position was significantly higher than West** while **Mid-west (4.5 m from tree row)** did not differ from East and Center position. **No differences** were observed in ether extract content.



Average light availability, soybean grain yield and grain ether extract in the five selected position in the alley. Lowercase letter indicate significant differences among positions ($p < 0.001$)

References

1. Tsonkova et al., 2012, Agroforest Syst, 85: 133–152; doi: 10.1007/s10457-012-9494-8
2. Nasielski et al., 2015, Agron. Sustain. Dev., 35:1541–1549; doi: 10.1007/s13593-015-0330-1

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