

# Must sowing density of intercropping be half of the two sole crops density for providing good performance?

## Problem

Optimal sowing density (OSD) depends on factors such as species and pedo-climatic conditions. Problem: difficulties in gaining experience and knowledge on OSD for intercrops.

## Solution

OSD should not be set as a specific recommendation. Sowing densities to use depend on specific situations, factors and different combinations.

## Outcome

According to some given abiotic and biotic factors and general rules, farmers can create and evaluate the matching OSD for their fields.

## Applicability box

### Geographical coverage

Europe

### Application period

Sowing (winter or spring)

### Required time

A few years of practical experience to implement method for the specific conditions

### Period of impact

N.A.

### Equipment

Sometimes a specific sowing machinery

## Practical recommendations

- OSD is influenced by different factors, especially target objectives, soil, vegetation period/climate conditions, choice of species and cultivars, organic vs. conventional system, weeds/pests/diseases control, technical equipment and type of intercropping.
- Proportion in yield can vary largely from sowing proportion. Total yield should be higher than the average of sole crops. In a cereal-legume-intercropping, legumes are responsible for a high protein content and cereals have a high plasticity for tillering/compensation. They suppress weeds but also tend to suppress their mixture partner. For central Europe, 80 % of sole crop sowing rate of legumes and 40 % of cereals can be used as a first start (Dierauer et al., 2017). Matching seed depth and homogeneity of the mixture should be checked.

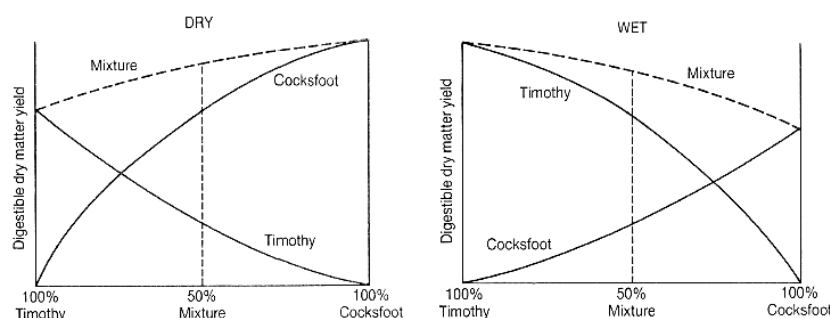


Fig. 1 Yields of sole crop and mixtures of two pasture grasses, cocksfoot and timothy, under two different climate conditions (Forbes and Watson, Plants in Agriculture, 1992).

## Practical testing/ Farmers' experiences

Farmers should try out the optimal mixture ratio. Start a small-scale trial (e.g. 10m\*100m) with different sowing densities. Replicate more than one year and contact other farmers, advisors or local seed companies for feedback and knowledge sharing.





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## Further information

- Book: Dierauer H., Clerc M., Böhler D., Klais M., Hegglin D. 2017. Erfolgreicher Anbau von Körnerleguminosen in Mischkultur mit Getreide. Forschungsinstitut für biologischen Landbau, Frick, Schweiz, see: [http://agrarpaxisforschung.de/fileadmin/user\\_upload/Bilder/FiBL\\_Erfolgreicher\\_Anbau\\_von\\_Koernerleguminosen\\_in\\_Mischkultur\\_mit\\_Getreide.pdf](http://agrarpaxisforschung.de/fileadmin/user_upload/Bilder/FiBL_Erfolgreicher_Anbau_von_Koernerleguminosen_in_Mischkultur_mit_Getreide.pdf)
- Check the [Organic Farm Knowledge Platform](#) for more practical recommendations.

## About this abstract

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**ReMIX** is a H2020 multi-actor project that will allow designing cropping systems based on agro-ecology for the benefit of farmers and the whole EU agricultural community. ReMIX will exploit the benefits of species mixtures to design more diversified and resilient agro-ecological arable cropping systems. Based on a multi-actor approach, ReMIX will produce new knowledge that is both scientifically credible and socially valuable in conventional and organic agriculture. The project will tackle practical questions and co-design ready-to-use practical solutions. The project will span from the specification of end-user needs and the co-design of in-field and on-farm experiments to demonstrations with evaluation of new varieties and practices. ReMIX will contribute to the adoption of productive and resilient agricultural systems. The project is running from May 2017 to April 2021

**Website:** [www.remix-intercrops.eu](http://www.remix-intercrops.eu)



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