

Practice abstract #3.15

Addressing lentil lodging through mixed cropping with cereals



Hard to harvest: Lodged lentils. © Yannik Schlup, Agroscope

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Lentil lodging, mixed cropping, tillers

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CHALLENGE

Lodging is caused by bending or collapsing of crops under their own weight. It is a common challenge in lentil production, reducing yield and crop quality. This issue is especially pronounced in pure lentil stands, where plants lack structural support. The yield reduction happens due to lower productivity and difficulties to harvest the plants.

SOLUTION

Introducing cereals, particularly oats, in mixed cropping systems has proven effective in mitigating this challenge. Oat tillers provide structural support to lentil plants, reducing lodging severity. The benefits are most evident in mixture with shorter oat varieties, which leverages equal canopy development of lentils and oats and ensure a low-interspecies competition.

Analysis of mixed cropping systems shows that oat tiller density influences lentil lodging. Tiller densities surpassing 130 tillers per square meter provided excellent support with minimal impact on lentil yield.

PRACTICAL RECOMMENDATIONS

Optimal tiller density: For mixed cropping systems, ensure oat tiller densities exceed 130 per square meter to achieve effective lentil lodging reduction. However, excessively high tiller densities do not significantly enhance yields but may increase competition for resources.

Oat variety selection: Use shorter oat varieties in mixed cropping systems, as their structural support for lentils is largest. Taller varieties may result in lower lodging reduction.

Field layout and management: Sow oats and lentils in mixed seeding patterns to facilitate the maximum interaction between the species. Monitor plant densities regularly to discover the behaviour of mixed cropping on your fields.

Harvest considerations: Adjust harvest strategies to accommodate the mixed stand. The presence of oats necessitates careful harvest



Optimal oat-lentil mixture resulting in strong support of lentils through oats, preventing lentil lodging.
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timing and machinery adjustments to minimise losses. Post harvest-separation is simpler if the lentil and oat grains have different colors and sizes.

CONCLUSION

By integrating cereals into lentil cropping systems, farmers can effectively reduce lodging, thereby enhancing crop stability and yield quality. This mixed cropping approach not only improves productivity but also supports sustainable agricultural practices by increasing biodiversity in the field.

About CROPDIVA

CROPDIVA wants to put 6 underused arable crops back in the fields: oats, hull-less barley for human consumption, triticale, buckwheat, faba beans and lupins. 27 European partners are joining forces to enhance agrobiodiversity in Europe. They will achieve this by focusing on crop diversity and creating local value chains. The project is running from September 2021 to August 2025.



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