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Improving the economic value of species mixtures through harvesting and grain separation jointed management

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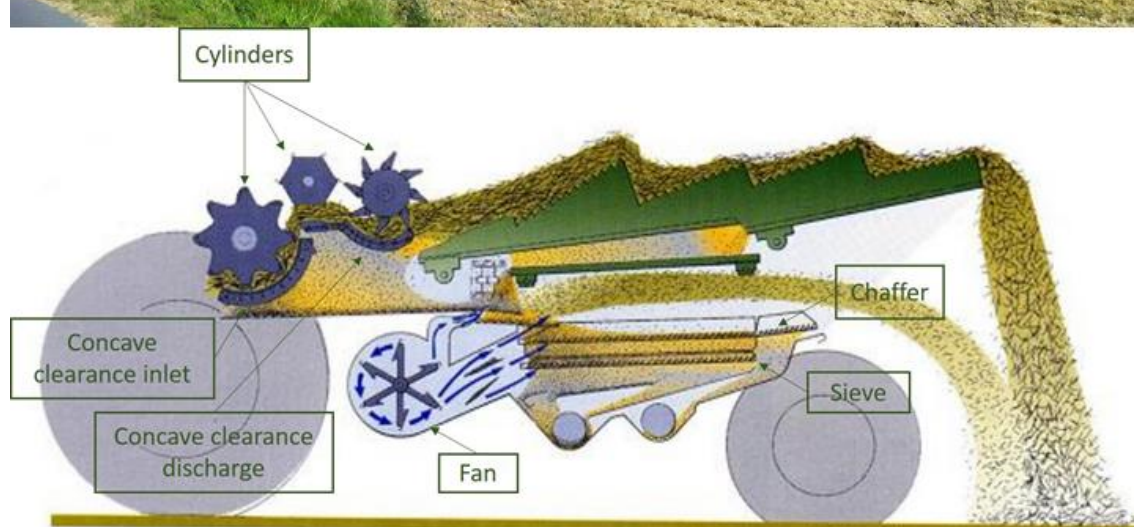
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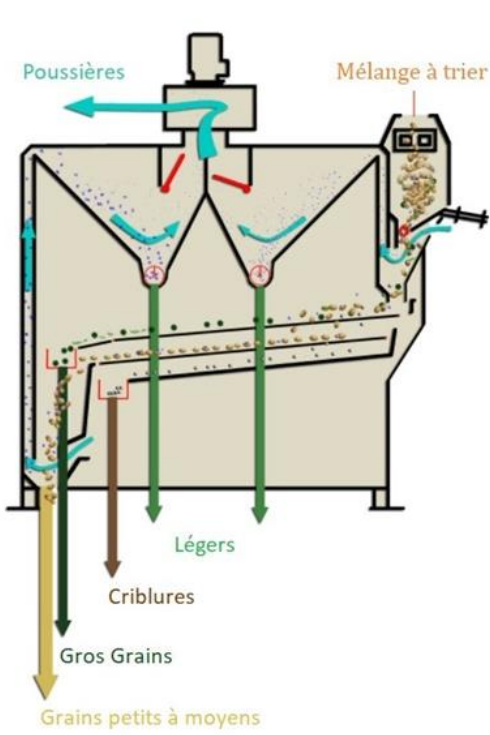
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Laverda M410 used for harvest



SVD100 used for grain separation



Effect of combiner settings on proportion of broken grains



Insufficient quality after a single separation step for wheat-lentil

Context

- Demonstrated interest of species mixtures (yield, stability, quality)
- Grain separation remains a crucial lock-in for a larger adoption

Objectives

- Assess the feasibility of harvesting and separating two species
- Determine harvest-separation settings maximizing economic value

Materials and Methods

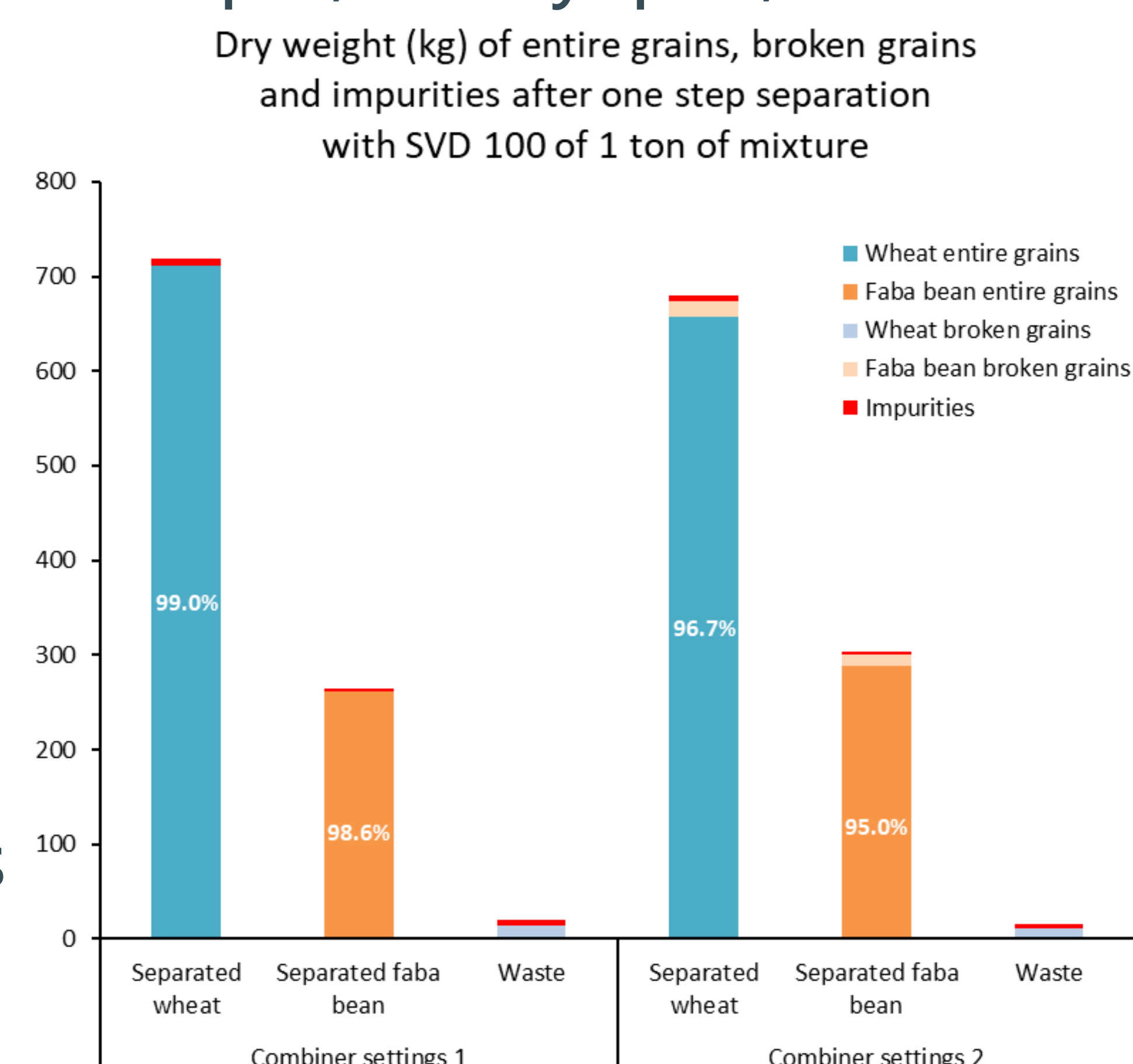
- Large field trial on species mixtures with different grains size (wheat-lentil, wheat-faba bean, wheat-lupin, barley-pea, rapeseed-pea)

- Use of existing machines:

- Combiner Laverda M410 (AGCO)
- Separator SVD100 (Etablissements Denis)

Results

- Certain combiner settings limit losses, impurities and broken grains (e.g. settings 1 vs 2 in the figure)
- A single separation step may be sufficient for wheat-faba bean, wheat-lupin and rapeseed-pea
- A second separation is necessary for barley-pea and wheat-lentil



Conclusion

- Harvest can be optimised by efficient settings of current combines
- The feasibility and efficiency of grain separation depends on:
 - The mixed species (e.g. difference in grain size)
 - The quality of the harvest (e.g. % of broken grains)

Species mixtures can be properly valued economically by optimising harvest and grain separation parameters



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