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## Economic benefits from higher species diversity in intensively managed grasslands

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### **Abstract:**

*Grasslands cover a major share of the world's agricultural area and are important in global food security. Species diversity in grasslands is known to increase and stabilize biomass yields. In this paper, we value these effects of species diversity from an agro-economic perspective. We extend earlier research by accounting for species diversity effects on nutrient content and nutrient yield and we use a rich dataset from 16 intensively managed grassland sites across Europe. Combining this information, we focus on milk production potential and potential revenues from milk production. The results show a higher potential milk production, thus, higher revenues with higher species diversity. We also report reduced production risk in more diverse grasslands because of lower variance of nutrient yield. Further, we find considerable gains in certainty equivalent as the expected value and total insurance value increase with species diversity. These findings are supported using tests based on stochastic dominance analysis. Furthermore, we also find a positive diversity effect when the best performing monocultures are compared with all and best performing mixtures. Overall, we find that farmers economically benefit from higher species diversity and our results facilitate decision making to sustainably intensify grassland based production.*

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