**Effect of precipitation on dry-matter production of a meadow with varied cutting frequency**

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**Introduction**
- Water supply = main growth factor for grassland in most site conditions  
- Differences in rainfall considered responsible for year-to-year variation of grassland dry matter (DM) production under constant management

**Objective of this study:**
- Influence of varied cutting frequency  
- two levels of nitrogen fertilization  
- precipitation variability on botanical composition and DM yield

**Materials and methods**

**Field experiment**
- Site: Stuttgart-Hohenheim (400 m a.s.l., 8.8°C mean daily temperature, 698 mm annual rainfall, silty loam)  
- Seed mixture of 23 species sown on an arable field in 1994  
- Plot size 39 m², split-plot design, 4 replications

**Experimental factors**
- **I. Cutting frequency**  
  2, 3, 4 or 5 cuts per year
- **II. Nitrogen fertilization**  
  low (30 kg N ha⁻¹ cut⁻¹), high (60 kg N ha⁻¹ cut⁻¹)

**Results**

**Figure:** Annual dry matter yield and rainfall

**Table:** Quotient of dry matter yield per cut and amount of rainfall during the respective growth period (kg ha⁻¹ mm⁻¹). Mean of annual data from 13 years.

**Conclusions**
- Simple basic relationships between DM yield and rainfall were not evident. There are more factors which influence the harvested DM at this site and which have to be considered, like water storage capacity of the soil, rain distribution and water availability at different growth stages of the sward.
- In a next step, the data will be used for modelling DM production as a function of weather conditions and soil water availability.

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