

Effect of MuD Säuer+ im Feld - Economic Calculation

1. Assumptions (from article)

- Yield (cereals): **95 dt/ha**
- Prices:
 - Wheat: **€21/dt**
 - Rye: **€18/dt**
 - Barley: **€24/dt**
- Acid cost:
 - €0.55 per litre
 - ~2–4 L/m³ typical
- Machine cost: **€30/ha**

Typical **total cost assumption:**

- **€40–70 per ha** (realistic working range)
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2. Cereals (3.8% yield increase)

Yield effect

- $95 \text{ dt/ha} \times 3.8\% = +3.6 \text{ dt/ha}$

Additional revenue

Crop	Price €/dt	Extra yield	Revenue €/ha
Wheat	21	3.6 dt	€76/ha
Rye	18	3.6 dt	€65/ha
Barley	24	3.6 dt	€86/ha

Average cereals:
~€70–85 per ha

Net profit (after cost)

Scenario	Revenue	Cost	Net result
Low cost (€40)	€70–85	€40	€30–45/ha
High cost (€70)	€70–85	€70	€0–15/ha

Conclusion cereals:

- Break-even to moderate profit
 - Strong upside in high-loss conditions (heat, wind)
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3. Grassland (13% yield increase)

Grassland has **much stronger effect**

Assumptions

Typical grass yield (conservative):

- 100 dt DM/ha (example baseline)

Yield effect

- 13% → +13 dt/ha

Value of grass (typical range)

- €15–25 per dt DM (depending on feed value)

Additional revenue

Value level Revenue €/ha

€15/dt **€195/ha**

€20/dt **€260/ha**

€25/dt **€325/ha**

Net profit (after cost)

Scenario	Revenue	Cost	Net result
Low value	€195	€40–70	€125–155/ha
Medium	€260	€40–70	€190–220/ha
High	€325	€40–70	€255–285/ha

Conclusion grassland:

- **Very strong profitability**
- Clearly higher return than cereals
- Major driver for adoption

4. Overall Conclusion

Cereals

- €0 → €45 per ha
- Economically viable
- Stronger under high NH₃ loss conditions

Grassland

- €125 → €285 per ha
 - **Highly profitable**
 - Key economic case for acidification
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5. Strategic Interpretation

Cereals = “safe + regulatory + efficiency argument”

Grassland = “strong business case / ROI driver”

This aligns perfectly with:

- NH₃ regulation pressure
 - Increasing fertilizer prices
 - Need for nitrogen efficiency
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Summary

The results from the MUD practical trials clearly demonstrate that slurry acidification can deliver both agronomic and economic benefits under real farming conditions.

Across arable crops, acidification leads to a measurable increase in yield of around **3.8% on average**, corresponding to an additional revenue of approximately **€70–85 per hectare**. While the economic outcome in cereals is sensitive to costs and conditions, the technology generally proves to be cost-neutral to moderately profitable, with the strongest effects observed under conditions with high ammonia loss risk.

In grassland, the impact is significantly more pronounced. Yield increases of around **13%** translate into substantial additional revenues, typically in the range of **€200–300 per hectare**, clearly exceeding the additional costs of the technology. This makes acidification particularly attractive in grass-based systems.

Beyond direct yield effects, slurry acidification improves nitrogen use efficiency, reduces ammonia emissions, and contributes to compliance with environmental regulations. In many cases, further economic benefits may arise from reduced need for mineral fertilizers.

Overall, slurry acidification represents a **technically proven and economically viable solution**, with strong potential to support both farm profitability and environmental performance, especially in systems and conditions where nutrient losses are high.