

Innovation Centre  
for Organic Farming

# Oat straw pellets as bedding for cattle

Project: Tørt og godt – alternativ strøelse til husdyr  
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NextGenerationEU

# Oat straw in pellets

According to the Organic Sector Commitments: minimum 50% of straw used as bedding on cattle farms producing milk and/or beef must be organic

- Investigate other solutions as bedding material
  - Lower risk
- ~20.600 ha organic oat in 2023
- Pelleted oat straw: Enhancing bedding quality by processing
- *Increased potential in biogas (?)*



Photo: Kirstine Flinholm Jørgensen

# Advantages of processing

- Heated to 70-100 °C
- Increased absorbancy
  - Absorbs 4-5 liter of water/kg pellets\*
  - Non-processed: 2,5-3,3 liter of water/kg pellets\*
- Increased hygiene
  - Killing of potential pathogens
- Higher density lower volume
  - Moving straw from East- to West Denmark

\*Based on literature and Literature study in DLBR Dansk Økologi 2020





# On-farm trial at Danish organic dairy farm

Trial on farm with the following)

- Deep-bedded cubicles
- Cubicles with mattress (water)
- Deep litter area

Focus on cow-comfort, handleability and economy

Gathering experiences with the bedding material



Photo: Kirstine Flinholm Jørgensen



Photo: Ann-Sofie Krogh Andreassen



Photo: Ann-Sofie Krogh Andreassen



# Experiences in two types of cubicles: deep-bedded

## Practical

- Easy to work with
- Using cubicle dispenser
- New bedding 2x week
- Average of 9.5 kg/cubicle/week
- Level in the cubicles lowered in the period

## Cow's respond

- No changes observed in cows lying behavior
- No changes observed in moisture/humidity in cubicles, dust, smell etc.



Photo: Ann-Sofie Krogh Andreassen

# Experiences in two types of cubicles: mattress

## Practical

- 6 kg/cubicle/week
- Same perceptions, though
  - Pellets rolling down
  - Hock lesions
- Same level of “dry” → promising for crushed pellets

## Cow's respond

- Farmers did not register any changes





## Experiences in deep litter

- Farmer: wanted to see the potential of pellets without straw on top
- Keeping a level comparable to that of deep litter with straw
- Calving heifers changed their lying behavior
  - Standing up
  - Spending more time near the edge with straw
- Dry cows: no changes observed
  - Heifers had crushed the pellets
- Higher level and more dry at feeding table
- Mucking out: dry but warm
  - Still looking fine on top



# In general: farmer's perception

## Positive experiences

- Cows responded well to the new bedding in general
- Apparently cleaner during the trial compared to before
- Less straw on udder and in AMS
- No issues in regard of dust
- Absorbing lower layer in deep litter (?)
- Nice effect at feeding table in deep litter

## Negative experiences

- Price: 2.52 DKK/kg (~3.96 NOK/kg)
- Apparently not possible to reduce the amount of bedding when using pellets compared to straw
- The current pellets are very hard
- Not suitable for all cubicles



Experiences with pellets of oat straw as bedding for dairy cows

[De første erfaringer med havrehalmspiller som strøelse til malkekvæg - YouTube](#)



## Summing up:

- Pellets must not be too hard
- Aim for a pellet, you can crush between your fingers
- Potentially suitable for some cubicles
- Potentially cleaner cows/ increased hygiene
- We were not able to create a guideline in regard of expected amounts per cubicle
- ... hence no economical baselines
- The price is too high – benefits must be clear

## Other perspectives:

- Crushed pellets in stead of whole pellets?
  - Briquetted straw
- Mixing pellets with straw or other bedding types?
  - Saving straw by implementing pellets in e.g., part of deep litters etc.
- Mixing straw with canola straw or another material when pressing the pellet may create a looser pellet



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Thank you 😊

For further project results: Tørt og godt  
– alternativ strøelse til husdyr (icoel.dk)



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# Mischantus giganteus as bedding for cattle











