Waterborne Feeding

What do we know in Skretting?

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Summary

- Airborne vs waterborne
- Laboratory testing
- Field work
- Fish trial
- Nutrient losses







Airborne vs. waterborne feeding













Laboratory testing



Waterborne feeding simulator in Skretting AI lab



Probe measuring water quality online



Time (minutes)

DML = dry matter loss analysed offline TS = total solids analysed inline



Field work



Scaling up (with Fluctus)

System description

Length of hose: 300 m Water speed: 1.2 m/s Time: 6 minutes Flow: turbulent

Method

Feed production: Stavanger plant Feed amount: 500 grams per test, triplicates Collecting the feed after transfer and drying it in an oven





Screening of commercial feeds in the waterborne feeding test rig





Learnings

- Skretting feeds behave well in waterborne feeding systems
- Small feeds (4 mm) lose more dry matter during waterborne feeding
- Dust in feeds has a negative effect on dry matter loss (it's important to protect the feed against breakage before feeding)
 - There's an optimal transfer speed (balancing the losses from time spent in water and turbulence in hoses)



Water + feed + air = ?







Animal study- Lerang



3 tanks per treatment



Conclusions









Increased feed intake in group fed with feed soaked for 5 and 30 mins Higher FCR in group fed with feed soaked for 30 mins After correction for dry matter loss during feeding, no significant differences in feed intake or FCR between traditional and wet feeding



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Nutrient losses



What are we losing in water?

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Losses of macronutrients (protein, fat, ash) are following the overall dry matter loss

 Losses of micronutrients are faster for the supplemented, water-soluble ones (vitamins, free amino acids)



Underwater feeding



More challenges to come?

Underwater feeding...

... with floating feed?





Behavior of feed in water

General conclusion



Effect of soaked feed on fish performance



Rate at which the pellet loses nutrients in water

