

# Recycling P from residues of captured fish

PERM4 webinar June 22, 2021

Session «Fertiliser properties and user uptake of recycled nutrient materials»

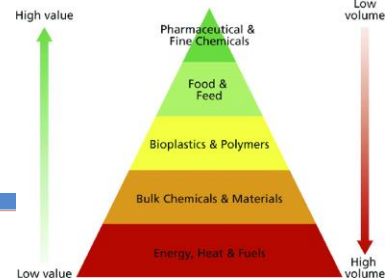
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# Large volumes of residual materials from captured fish in Norway



- Fish capture: 2.5 million tons live weight/year (lean fish, herring ++)
- 120 000 tons/year from lean fish not utilised
- Assuming this «waste» has 30% DM and 10% of P in DM = 3900 tons of P/year
- Equals 25% of total domestic P application (mineral + animal fertilisers)
- Industry actors prefer the top of the bioeconomy pyramid – costs must be kept low

1 kg P in dog food = 33 Euro  
 1 kg P in poultry manure = 10 Euro  
 1 kg P in mineral fertiliser = 4 Euro

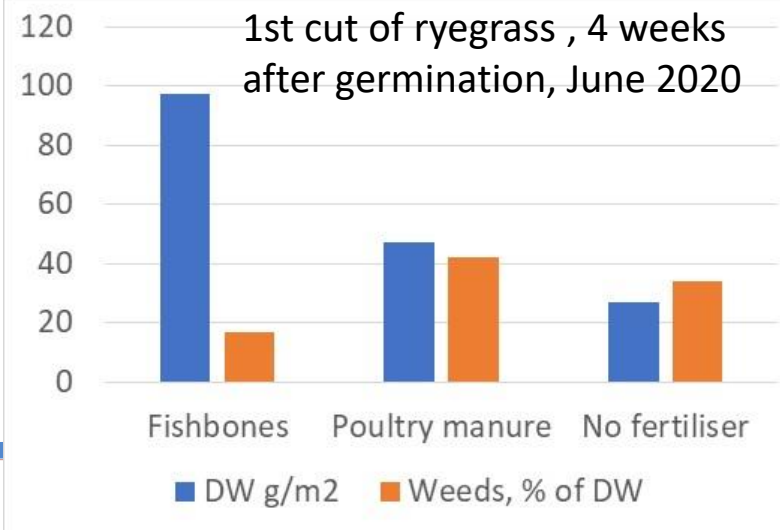




## Fish bones rich in P, Ca, N



pH	4.9
DM, %	80
N % of DM	4.1
P % of DM	9.3
Ca % of DM	16
K % of DM	0.1
Mg % of DM	0.08
S % of DM	0.2



- Extremely rapid growth effect (N?) e.g. in ryegrass
- Residual growth effect similar to poultry manure (+70% compared with the non-fertilised control)
- Soil P-AL doubled (40 to 80 mg/kg) after use of fishbones

