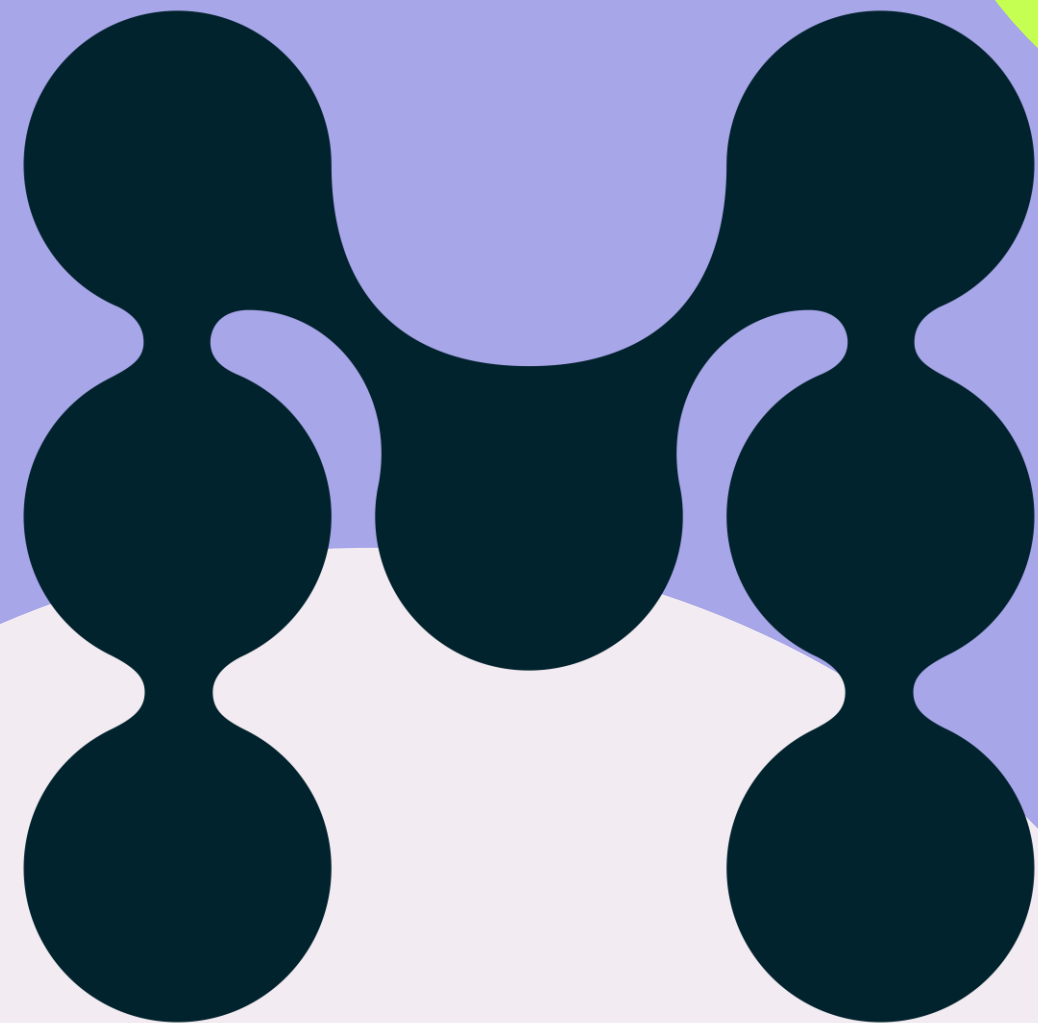




Biorefining of straw to high value products

Meliora Bio

”Something out of Nothing”

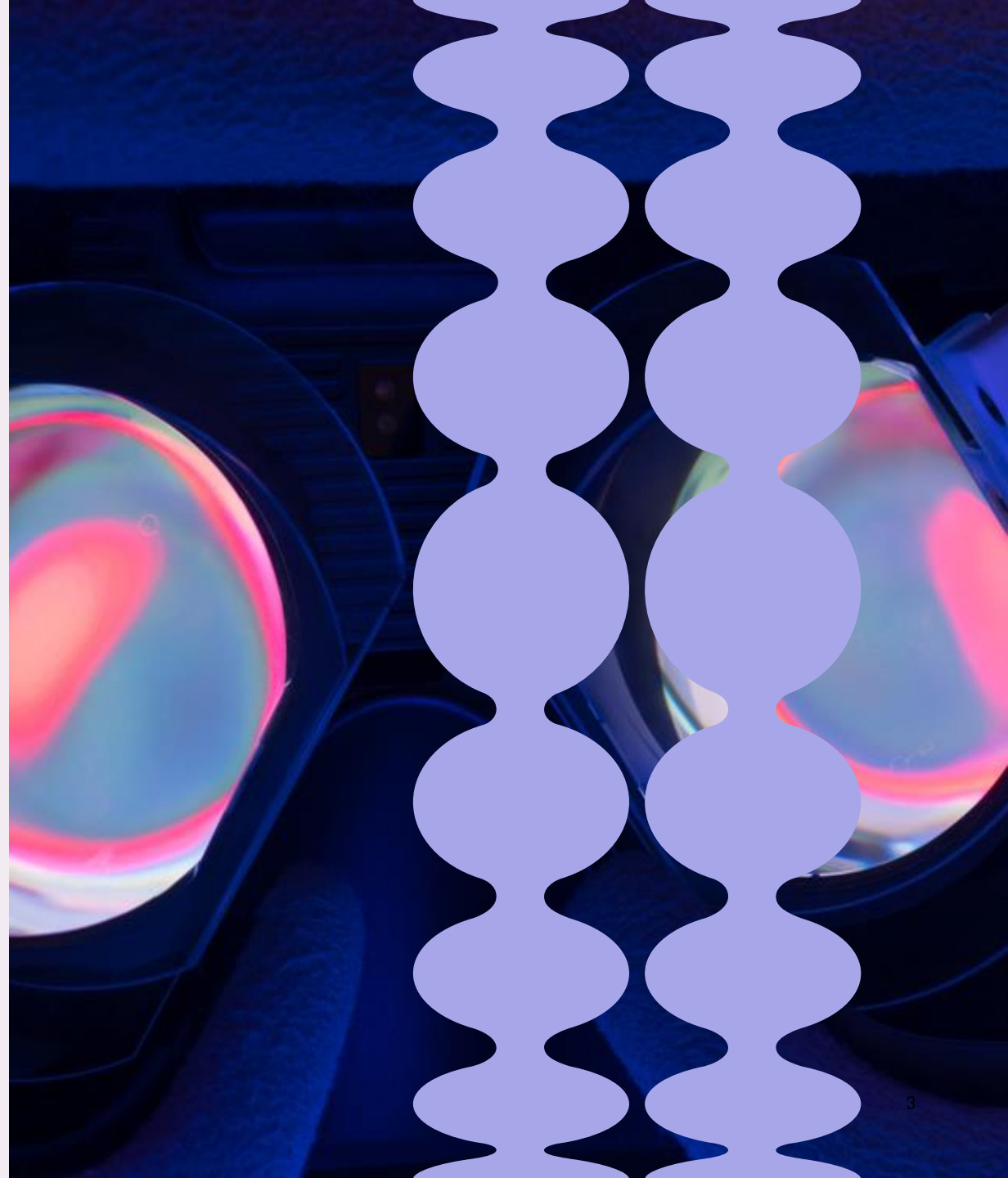
Meliora Bio is based in Kalundborg and upcycles biomass to new and innovative products. Through our work, we show a way forward within sustainable production and positive impact for consumers and environment.

Meliora Bio – History

- Inbicon was built in 2008/2009 by DONG as the first 2G Bioethanol production plant using straw as feed
- Karsten REE Holding acquired the former “Inbicon” from Ørsted in 2020 and immediately started a Covid emergency production of sanitary ethanol

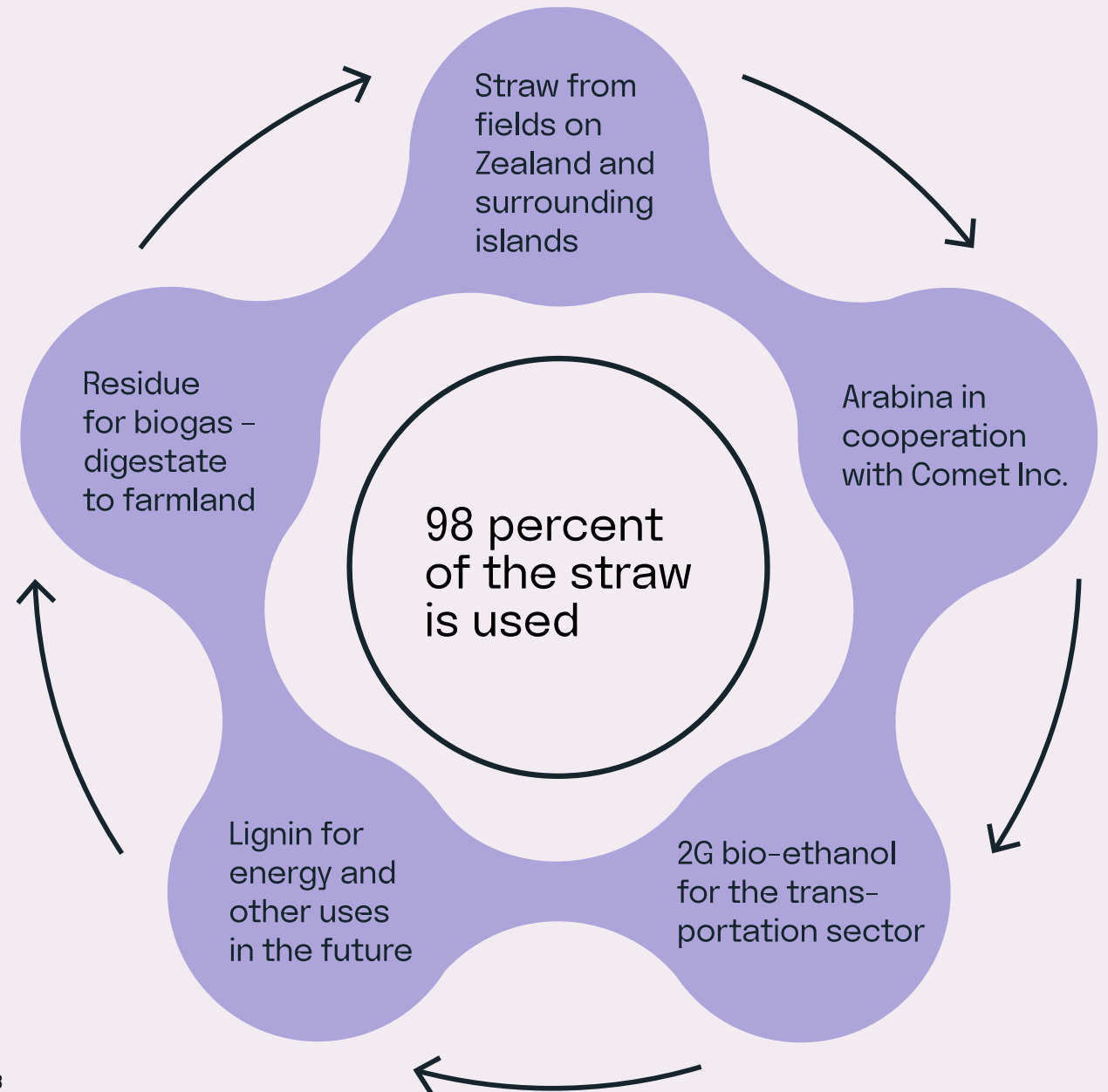
Challenges for intended production:

- Capacity of plant too small to base production of 2G bioethanol only
- Although sustainable in principle, plant needed improving around energy, water and waste issues

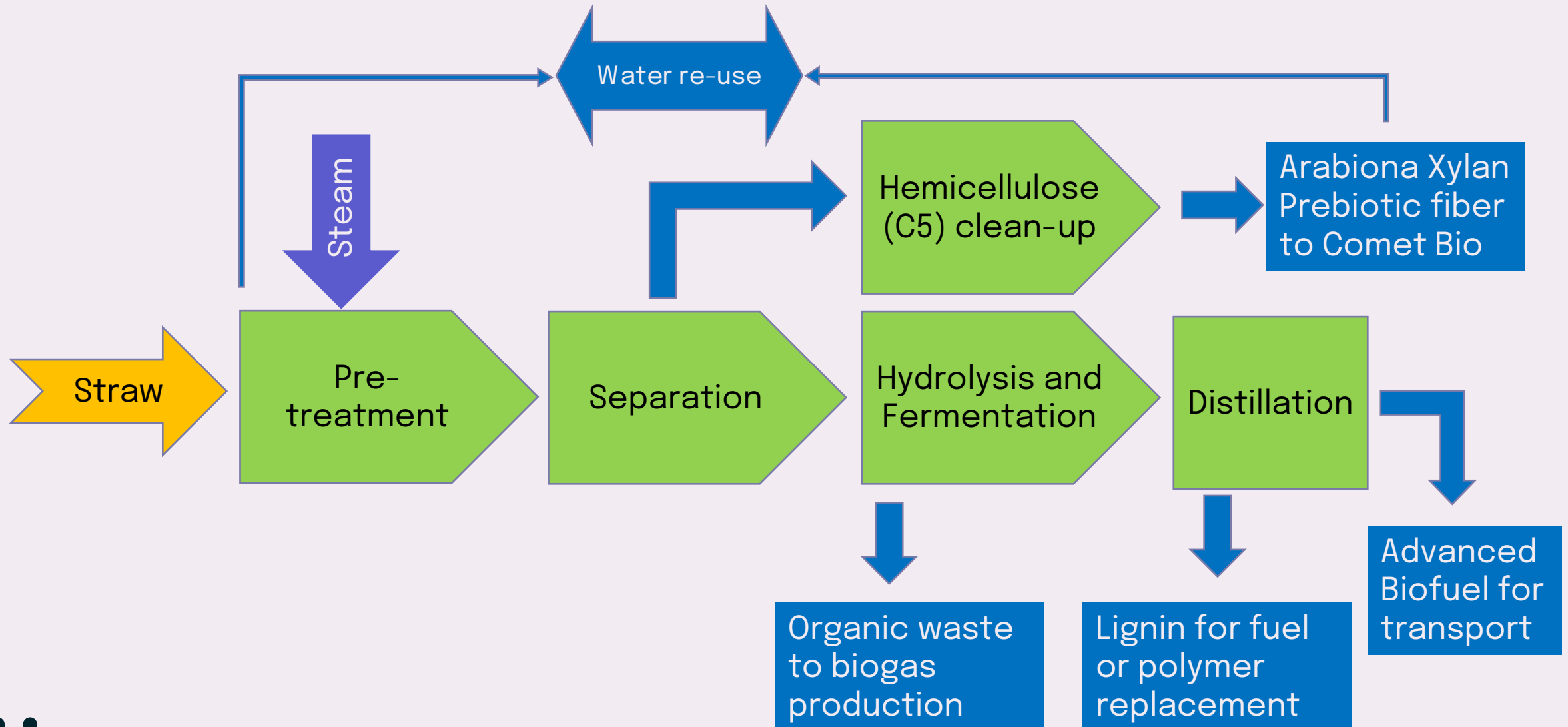


New Circular Production set-up

- Supply agreement for food ingredients AX from hemicellulose entered
- New factory section for AX clean-up established
- Focus on water re-use by installing advanced recycling technology
- Rebuilding refinery front end to optimize production of hemicellulose
- Focus on energy consumption and utilize low Carbon footprint steam



Innovative Production Meliora Bio and Comet



Meliora Bio producerer 2G bioethanol:

- ∴ Er ikke fremstillet af potentielle fødevarer (majs, korn eller sukkerrør)
- ∴ Har den kortest mulige CO₂-cyklus på ét år (affaldstræ: 20-50 år)
- ∴ Med Meliora Bios øvrige produkter (pre-biotics, lignin og biogas) opnår vi en udnyttelsesgrad af halmen på 98 pct.
- ∴ Pragmatisk løsning: Fremskrivninger viser stort antal benzinbiler også i kommende årtier. Andengenerations bioethanol nedbringer deres CO₂-udledning markant



Meliora Bio producerer 2G bioethanol:

- ∴ Fortrænger 40 pct. mere CO₂ end førstegenerations bioethanol – kan alene spare for mere en 10.000 tons CO₂
- ∴ Åbner mulighed for offensiv dansk klimaprofil på iblandingskrav og oprindelseskrav
- ∴ Produceret i Danmark, derfor forsyningssikkerhed og langt mindre transport
- ∴ Optager ikke landbrugsjord, men fremstilles af spildprodukt fra landbruget (halm fra Sjælland, Falster og Lolland)



Danmarks ambition for bio brændstof?

Hvad er Danmarks ambition for CO₂ udledning for transport?

- Vi vil ikke nå målet på 70% i 2030 – trafikforskerne tror maks. 20%
- Vi vil stadig have en stor mængde af nuværende biler på vejen i 2030 og 35. Start 2022 var der ca 2,8 mill person- og varebiler. I 2030 vil der af dem stadig være 1,9 mill på vejene.
 - Vil vi øge iblanding af importerede 1G biobrændstoffer
 - Vil vi fortsat acceptere at benzin selskaber opnår målene ved køb af UER certifikater
 - Tror vi at elbiler og P2X løser alle problemer

Eller

Griber vi efter en afprøvet løsning der kan hjælpe med at opfylde vores behov på kort og mellemlang sigt?





COMET

ARRABINA®

Nature's Best Dietary
Fiber, Perfected

AUGUST 2022

ARABINOXYLAN IS ABUNDANT IN NATURE

Arabinoxylan makes up ~70% of the soluble fiber naturally found in grains



YET LARGE QUANTITIES OF PROCESSED WHOLE GRAINS ARE NEEDED FOR A SINGLE SERVING SIZE OF SOLUBLE ARABINOXYLAN FIBER



~5 cups wheat bran cereal*



~3 grams*

ARRABINA®

Meliora Bio is onward innovative

Meliora Bio will continue innovation around the Kalundborg production facility

- Use of lignin to high value product
- CO₂ capture from fermentation
- Future upgrade of bioethanol to aviation fuel (SAF)



Questions?