

# Hvordan skalerer man i nye grønne værdikæder

Dansk Bioøkonomi Konference

Engtofte Gods

4. Oktober 2023

***Keld Ejdrup Markedal, R&D Direktør***

The logo for biooptimate features the word "biooptimate" in a dark grey, sans-serif font. A small green globe icon is positioned above the letter 'i' in "optimate".



Hvordan skalerer man i nye

# grønne værdikæder

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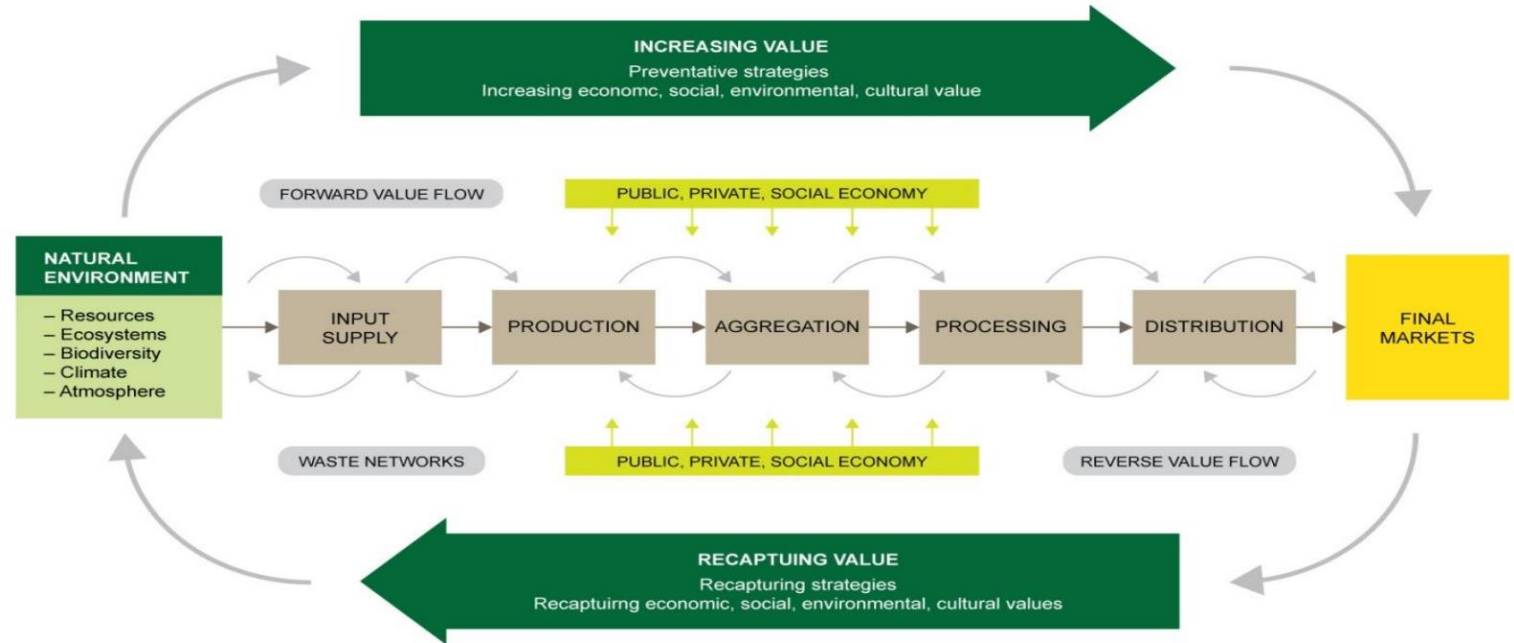
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 **biooptimize**



# The Green Food Value Chain Development framework



Source: Martin Hilmi, FAO - AGS



Food and Agriculture Organization of the United Nations

FAO-FiBL  
**Workshop**  
 A Knowledge Exchange Forum  
 for the Development of  
*Green Food Value Chains*

27 – 28 November 2014, FAO headquarters Rome (Italy)

# Nye grønne værdikæder?

## Beware of greenwashing

Sustainability and social responsibility claims are often false or misleading, as supply chain and manufacturing processes are complex and hidden. Companies need to dig deep to verify sustainability practices from suppliers.

### What is greenwashing and bluewashing?

#### GREENWASHING

The practice of issuing false or unverified claims connected to the environmental aspects of a product.

#### BLUEWASHING

The practice of issuing false or unverified claims connected to the social aspects of a product.

### Choosing an ecolabel— does it include:

- Up-to-date environmental and social responsibility criteria?
- Mandatory independent verification of compliance and proof for the purchaser?
  - System of industry accountability and consequences?



### Social responsibility issues in the supply chain

#### LABOR LAW VIOLATIONS

excessive working hours; underage workers; discrimination; low wages

#### LACK OF FREEDOM OF ASSOCIATION

restricted ability of workers to organize and negotiate with management

#### WORKER HEALTH AND SAFETY

inadequate protection against chemicals; poor safety measures; lack of necessary permits

#### FORCED LABOR

human trafficking; debt slavery; threat of violence; retention of passports

SOURCE: TOC DEVELOPMENT, "NAVIGATING THE SUSTAINABLE IT REVOLUTION"; ILLUSTRATION: BSGSS/GETTY IMAGES



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*The first step in developing a new plant protein often takes place in the laboratory, with a small amount being extracted from a new source or side stream.*

*...to make sure the protein is a viable product you need to be able to produce large amounts.*

*If you can't do this 'scale-up', the protein may be a dead end.*

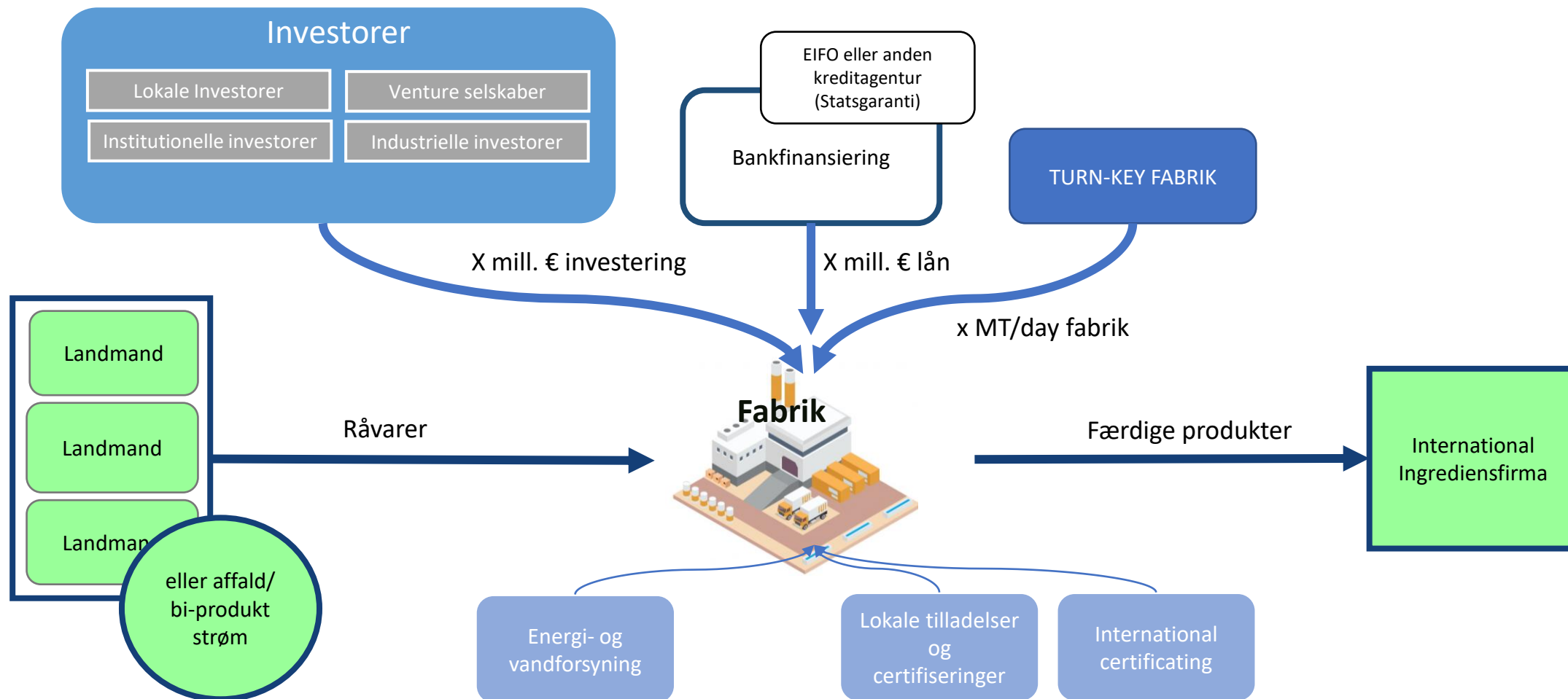
*- René Floris, NIZO Food Research Division Manager, 16-Feb-2022*

Teknisk muligt



Profitabelt

# Eksempel på projektstruktur





# Optimering af ressourcernes værdikæde

Bedst egnet primær råvare:

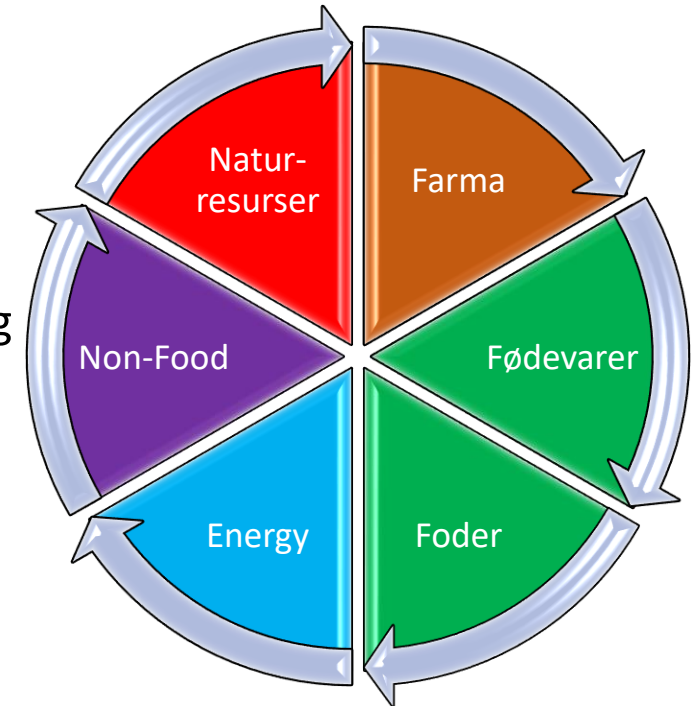
- Øget værdi til den samlede værdikæde
- Fødevarer, foder og energi som mulige produkter

Optimal landbrugsproduktionen:

- Hele kæden fra arealudnyttelse til afgrødehåndtering, opbevaring og transport.
- Øget **udbytte med fokus på værdi** ved samtidig minimeret brug af ressourcer.

Mål:

- Anvendelse af hele den primære bio-ressource
- Optimeret værdi
- Mindsket 'Carbon Footprint'



**One-In-All-Out** optimeret til **Specifikke Markeder**

# One-In-All-Out Koncept

Skift fokus fra **STIVELSE** eller **PROTEIN** til **FØDEVAREINGREDIENSER**

- **Holistisk syn på plant-biomassen – undgå fremstilling af affaldsstrømme**

- Undersøg sammensætningen af biomassen
- Identificer mulige applikationer – forskellige industrier!
  - Specificer applikationskrav
  - Identificer potentielle risiko-reaktioner / - stoffer

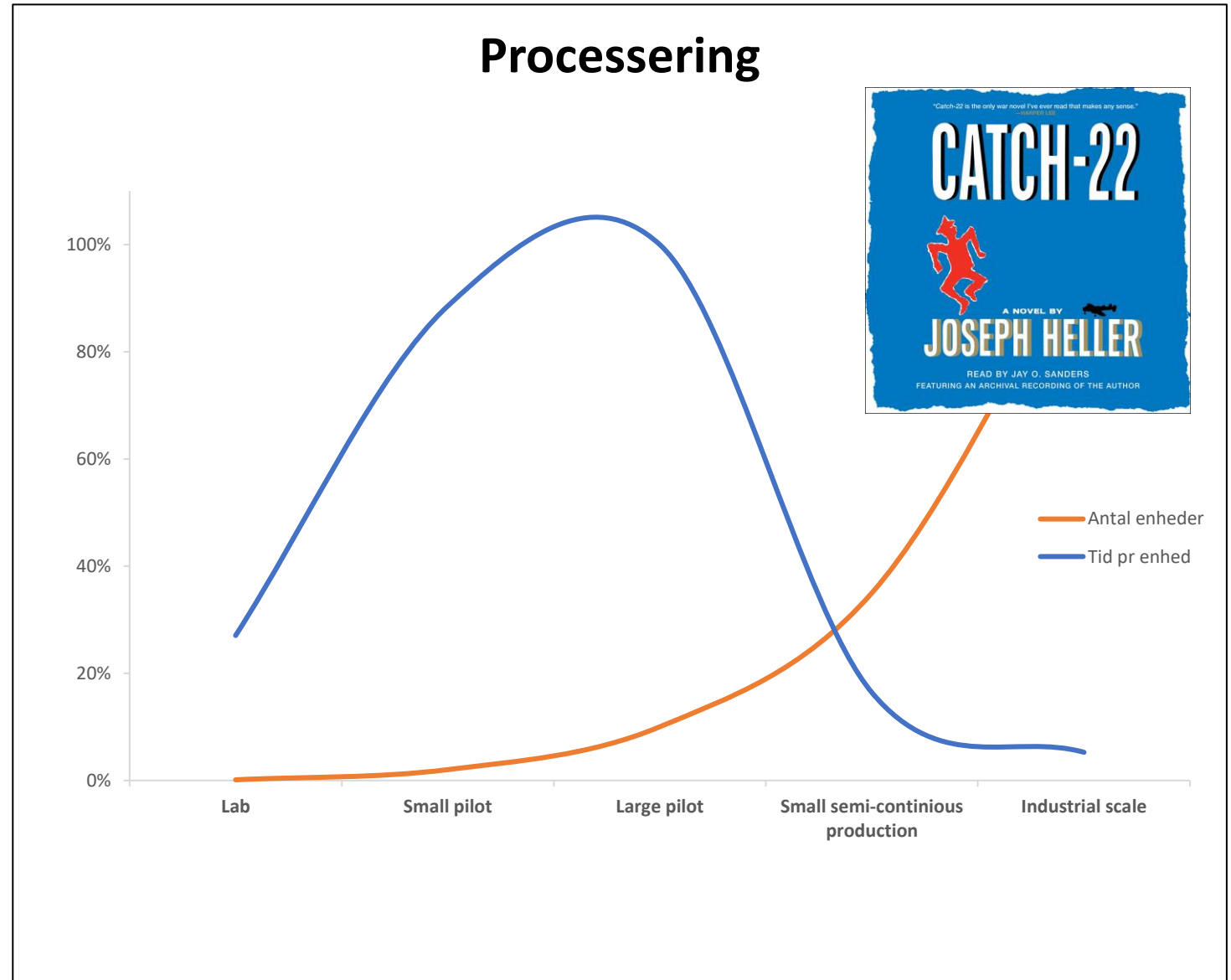
- **Primær produktion:**
  - Dyrk for bedst kvalitet og højest værdi
- **Udvikling af nye markeder:**
  - Sales & Marketing + Slutbrugernes behov



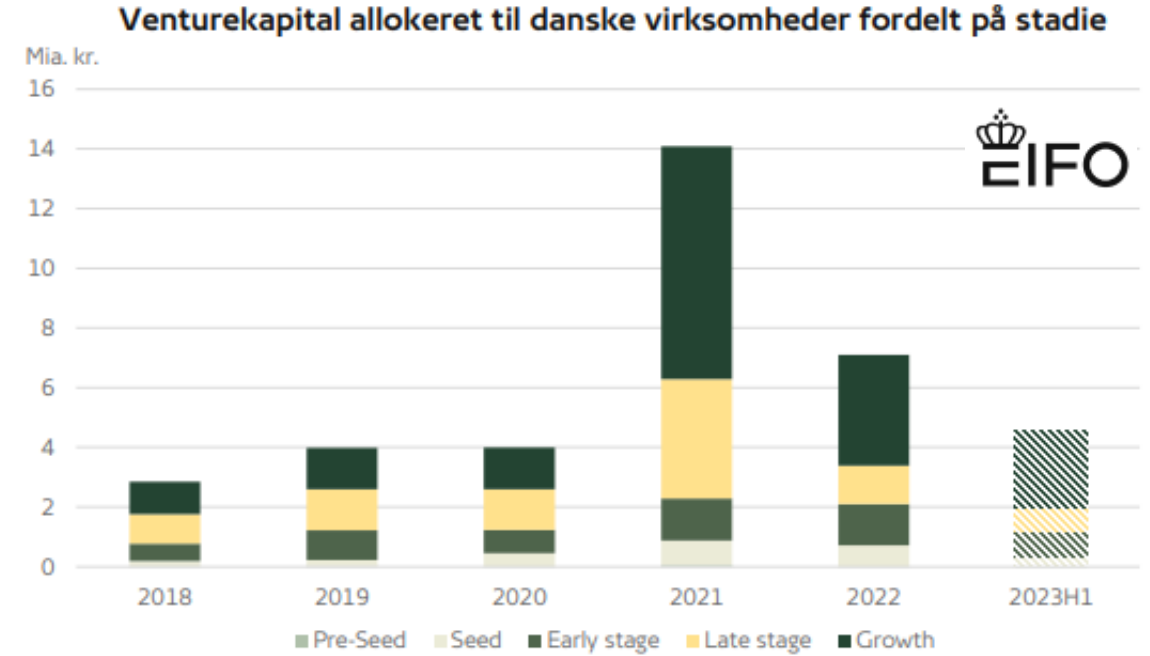
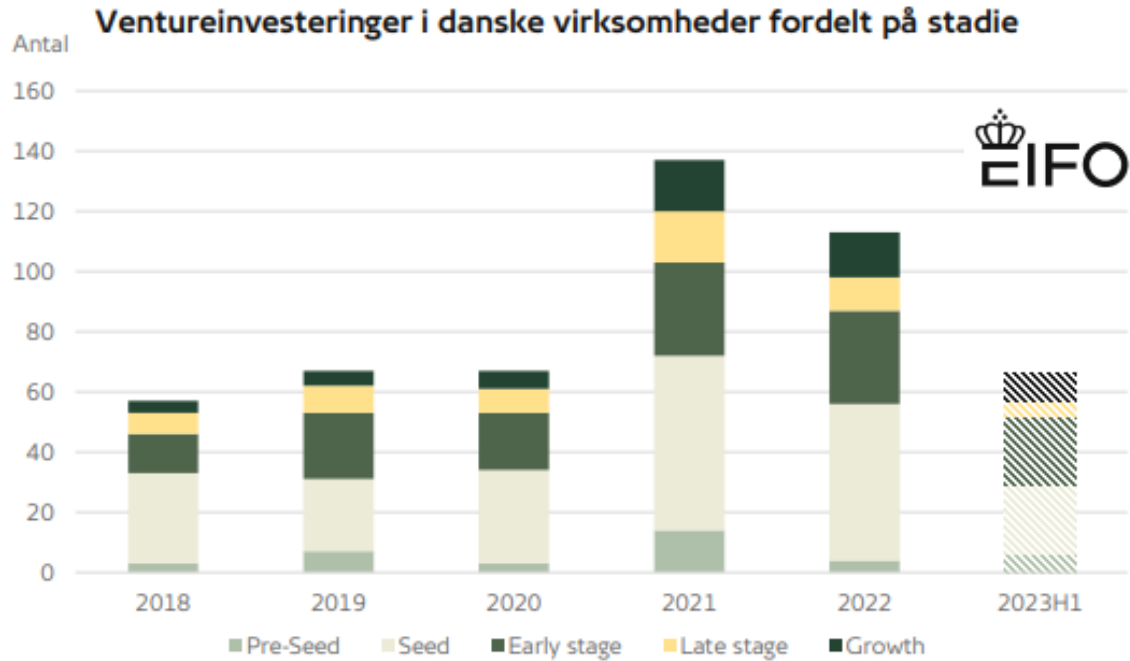
**Targeted  
Biorefinery  
Process Design**

# Pilotanlæggets begrænsninger

- Laboratorie
  - mulige produkter
  - mulig kvalitet
- Pilotanlæg
  - Indikerer en produktionsmulighed
    - Massebalance
    - Prototyper
- Investorrelevant verificering
  - Applikationsafprøvning
  - Industrielt sammenlignelige prøver



# Ventureinvesteringer i danske virksomheder





Tak for opmærksomheden

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