OIL BOOM IN NEBRASKA
INNOVATIONS IN SUSTAINABLE INGREDIENTS

Karim Kurmaly, Seafood Nutrition Partnership
September 2018
Blair, Nebraska population over 8000. Distance from the sea >1000 miles
Why is aquaculture so important?
Fastest growing food sector soon to overtake capture fisheries.

Global wild catch and aquaculture production

Intensive aquaculture farming is growing at a CAGR of 6% (Rabobank 2018).

Source: FAO (2017)
Why is salmon important?

BUILDING STRONGER HEARTS AND MINDS

Every adult needs at least 250 mg of Omega-3 EPA and DHA daily to maintain heart, brain and eye health.


September 2018 | Oil Boom in Nebraska
Is the continued aquaculture growth sustainable?
Quantity of fish stocks required to produce fish oil & fishmeal for aquaculture?

16,000,000 TONS WILD FISH

~ 5 million tons fishmeal
~ 1 million tons fish oil

~17% of global wild catch is consumed for the production of fish oil and fishmeal

Sources: IFFO, FAO
What does the FAO data show?
30% of fish stocks are overfished, 58% are fully fished & is of limited supply.

Global trends in the state of world marine fish stocks, 1975 – 2015

- FAO data is only based on landed fish.
- Illegal fishing is not accounted.
- MSY ignores ecosystem interactions.
- FAO relies on data from members.
- Wild fish stock levels have plateaued.

Source: FAO (2018)
A reaction: Omega-3 levels in farmed salmon halved during the last decade

Levels of EPA + DHA in farmed Norwegian Atlantic salmon between 2006 and 2016

Unit: g / 100g

Source: Seafood Data from NIFES (National Institute of Nutrition and Seafood Research), Norway

If nothing was done the level of the beneficial omega-3 can only really go down.

Prof Douglas Tocher
Stirling University
The challenge: supply of omega-3 from fish oil will limit growth of aquaculture industry & availability of EPA+DHA for human consumption

Emerging gap between supply and demand for omega-3

- Limited supply of fish oil as source of EPA+DHA
  - <1 million tons of FO per year
  - <90KT EPA+DHA

- Increasing demand for EPA+DHA
  - Aquaculture growth & biological requirement
  - Consumer demand for healthy nutrition

Supply-Demand-Gap
- will emerge in the near future

Meeting the demand for omega-3 fatty acids solely from fish oil is not sustainable.
MISSION IMPOSSIBLE?

Luckily not!

Natural marine algae is just another step for mankind!
Oil boom in Nebraska

[Image of industrial site with workers in hard hats and safety vests, with large metal structures and storage tanks in the background.]
What is all the fuss about? 

Current practice in aquaculture

Natural marine algae 
Zooplankton 
Fishing vessel 
Salmon

The composition of fish oil

DSM and Evonik breakthrough – shortening the natural food chain

Other Fatty acids

DHA/EPA

72 – 86 %

14 – 28 %

DSM and Evonik algal oil
The result is a net fish producer.

**current practice**
- wild catch fish* 2.0 kg

**using algal oil**
- less wild catch fish* << 1.0 kg

**using algal oil**
- no wild catch fish* 0.0 kg

**Algal oil from natural marine algae**

* Forage Fish Dependency Ratio (FFDR) | trimmings excluded

- farmed salmon 1.0 kg
- farmed salmon 1.0 kg
- farmed salmon 1.0 kg
Compelling reasons consumers choose salmon

% of salmon consumers indicating this is a key reasons for the final salmon product they purchase (top box – “extremely important”)

Use by date
A great fish to cook with/easy to prepare
Smell of salmon
Price
Omega-3 content
Sustainability of the source
Nutritional facts
Country of origin

UK
US
France

After price & country of origin, the omega-3 content and sustainability are a driving purchase behavior for salmon shoppers.
Making informed choices

Salmon, a tasty way to stay healthier

Every adult needs at least 250 mg of Omega-3 EPA and DHA daily to maintain heart, brain and eye health
MAXIMUM NUTRITION
MINIMAL IMPACT

Healthy EPA and DHA.
omega-3 promise
Sustainably sourced.

veramaris®
Growing food within planetary boundaries.