

### Fish feed trends Ireland September

### Niels Alsted Fefac



### **FEFAC** in a nutshell

- Created in 1959
- Represents industrial compound feed and premixtures manufacturers
- 33 Members:
  - 24 Member Associations from 23 EU Member States
  - 2 Observer Members (Serbia, Russia)
  - 7 Associate Members (Turkey, Switzerland, Norway (3), EMFEMA, EFFPA)
- 153 mio. t of industrial compound feed in EU-28 in 2013
- 7 Technical Committees to assist the FEFAC Council
  - Animal Nutrition
  - Industrial Compound Feed Production
  - Premix & Mineral Feed
  - Feed Safety Management
  - Fish Feed
  - Milk Replacers
  - Sustainability



### **FEFAC** Praesidium

FEFAC Presidet

Nick Major - AIC

### **FEFAC Vice-Presidents**

Alberto Allodi – ASSALZOO Jean-Michel Boussit – Treasurer – EUROFAC Cristina de Sousa – IACA Anton Einberger – DVT Witold Obidzinski – IZBA Zoltan Pulay – HGFA Ruud Tijssens – NEVEDI Patrick Vanden Avenne – APFACA/BEMEFA





Chairperson: P. Peršak (CFIA) Vice-Chair: P. Radewahn (DVT)

### **Industrial Compound Feed Production**

Chairperson: P. Musil (SKK) Vice-Chair: J. Piçarra (IACA)

### Milk Replacers

Chairperson: G. Kleinhout (EUROFAC) Vice-Chair: H. Swinkels (NEVEDI)

**Premix and Mineral Feed** Chairperson: R. Sijtsma (NEVEDI) Vice-Chair: J.F Labarre (EUROFAC)

### **Fish Feed**

Chairperson: N. Alsted (DAKOFO) Vice-Chair: T.A. Molland (NSF)

Feed Safety Management Committee Chairperson: Y. Dejaegher (BEMEFA) Vice-Chair: n.n.

> **Sustainability** Chairperson: A. Booth (AIC) Vice-Chair: n.n.

FEFAC Structure – Committees



### **Memberstates**

#### Active Members

| VFÖ           | Austria         | 1995 (1964)       |
|---------------|-----------------|-------------------|
| APFACA/BEMEFA | Belgium         | 1959              |
| BFMA          | Bulgaria        | 2013              |
| CFIA          | Croatia         | 2013 (2008)       |
| CAFM          | Cyprus          | 2004 (2003)       |
| SKK           | Czech Republic  | 2004 (2000)       |
| DAKOFO        | Denmark         | 1973              |
| FFDIF         | Finland         | 1995 (1993)       |
| EUROFAC*      | France          | 1959              |
| DVT           | Germany         | 1959              |
| HGFA          | Hungary         | 2012              |
| IGFA          | Ireland         | 1973              |
| ASSALZOO      | Italy           | 1959              |
| LGPA          | Lithuania       | 2005              |
| NEVEDI        | The Netherlands | 1959              |
| IZP           | Poland          | 2004 (2001)       |
| IACA          | Portugal        | 1986 (1976)       |
| ANFNC         | Romania         | 2014              |
| AFPWTC        | Slovakia        | 2004 (2003)       |
| GZS           | Slovenia        | 2004              |
| CESFAC        | Spain           | 1986              |
| FS            | Sweden          | 1995              |
| LANTMÄNNEN    | Sweden          | 1995              |
| AIC           | United Kingdom  | 1973              |
|               |                 | (observer as from |

#### **Observer Members**

| SFMA                                      | Serbia      | 2009     |         |  |                 |   |                                      |                                       |         |    |
|---|-------------|----------|---------|--|-----------------|---|--------------------------------------|---------------------------------------|---------|----|
|   |             |          |         |  |                 |   |                                      | m KIE                                 | -       |    |
|   | 1           |          |         |  |                 |   |                                      |                                       |         |    |
| Associate I                               | Members     |          |         |  |                 |   | 3                                    |                                       | 2 -     | -  |
| FFFDA                                     |             | 201/     |         |  |                 | 1   |                                      | 2 miles                               | È       | -  |
| ENERMA                                    |             | 2014     |         | 2                                      |                 | 1   |                                      | 8 / L                                 | 2       |    |
| NCE                                       | Nonwow      | 2003     |         | 100                                    | and the         | Swe   | den y                                | Finland                               |         | 1  |
|   | Norway      | 2003     |         | ¥                                      | Surger 1        | loway   |                                      | 1                                     |         | 1  |
| Norkarn                                   | Norway      | 2014     | 1       |  | 1.              | 11  |                                      |                                       | 1       |    |
| VCE                                       | Switzerland | 1044     | -3      |  | 1               | 1   | -                                    | Estoni                                | a       | Ru |
| VOF                                       | Turkov      | 201/     | 1. 2.   |  | 5               | 4-  | F                                    | Latv                                  | ia l    |    |
| TIDKIVLM                                  |             |          |         |  |                 | 1000  |                                      |                                       |         |    |
| TURKIYEM                                  | TULKEy      | (2005)   | Ireland |  | -               |   |                                      | Lithuania                             |         |    |
| TURKIYEM                                  | Turkey      | (2005)   | Ireland | HoRed                                  |                 |   | Russia                               | Lithuania                             |         |    |
| TURKIYEM                                  | Turkey      | (2005)   | Ireland | United<br>Kingdom                      |                 |   | Russia                               | Lithuania                             |         |    |
| Potential A                               | ctive Membe | (2005)   | Ireland | United<br>Kingdom                      | NL German       |   | Russia                               | Lilhuania                             |         | •  |
| Potential A                               | ctive Membe | (2005)   | Treland | United<br>Kingdom                      | NL Germer       |   | Polence                              | Lithuania                             |         |    |
| Potential A<br>Estonia                    | ctive Membe | (2005)   | Trebond | United<br>Kingdom<br>Be<br>Luxembo     |                 | ny<br>Częchi<br>Republi                                     | Polant                               | Lithuania                             |         |    |
| Potential A<br>Estonia<br>Latvia          | ctive Membe | (2005)   | liciond | United<br>Kingdom                      | NIL German      | hy Czech  | Polence                              | Lihuania                              |         | -  |
| Potential A<br>Estonia<br>Latvia<br>Malta | ctive Membe | (2005) a | irebond | United<br>Kingdom<br>Luxembo           | NL German       | ny Czech<br>Republic<br>Austria                             | Polene<br>Slavek<br>Hungery          | Lihuania                              |         |    |
| Potential A<br>Estonia<br>Latvia<br>Malta | ctive Membe | (2005)   | Intend  | United<br>Kingdom<br>Be<br>Luxembo     | NL Germen       | Ny Czech<br>Republi<br>Austria<br>Stotenia                  | Polene<br>Slovak<br>Hungang          | Lihuania                              |         |    |
| Potential A<br>Estonia<br>Latvia<br>Malta | ctive Membe |          | Incland | United<br>Kingdom<br>Be<br>Luxembo     | NL Germer       | Austria<br>Shrenia Cr                                       | Polano<br>Slovek<br>Hungan           | Liihuania                             |         |    |
| Potential A<br>Estonia<br>Latvia<br>Malta | ctive Membe |          | Incland | United<br>Kingdom<br>Luxembo           | NL<br>E Cerrret | Ny Czech<br>Prepubli<br>Austrie<br>Sintenia Ca              | Polant<br>Slovak<br>Hungary<br>Jahla | Lihuenia<br>Romani<br>foia            | a       |    |
| Potential A<br>Estonia<br>Latvia<br>Malta | ctive Membe | (2005)   | Incland | United<br>Kingdom<br>Luxembo           |                 | ny Częch<br>Częch<br>Częch<br>Storena<br>Storena<br>Storena | Poland<br>Slovak<br>Hungan<br>Jahla  | Lilhuania<br>e<br>Ramani<br>foia      | Darla   |    |
| Potential A<br>Estonia<br>Latvia<br>Malta | ctive Membe | (2005)   | Incland | United<br>Kingdom<br>Luxembo           |                 | ny Częchi<br>Zeęchi<br>Aushie<br>Storenie<br>Italy          | Poland<br>Foland<br>Hungany<br>palle | Lilhuania<br>e<br>Romani<br>dula      | gatia   |    |
| Potential A<br>Estonia<br>Latvia<br>Malta | ctive Membe | (2005)   | Incland | United<br>Kingdom<br>Luxembb<br>France |                 | Nu Creenti<br>Republi<br>Softens co<br>raiu                 | Polent<br>Folent<br>Hungary          | Lilhuania<br>e<br>Romani<br>Abia Buli | antia a |    |
| Potential A<br>Estonia<br>Latvia<br>Malta | ctive Membe | (2005)   | Incland | United<br>Kingdom<br>Luxembb<br>France |                 | ny<br>Creatin<br>Aushia<br>Softenia<br>Ca                   | Polene<br>Slovek<br>Hungary<br>petie | Lilhuania<br>e<br>Romani<br>Abb Bul   | gatia   |    |

\*EUROFAC took over from SNIA in 2016

Situation on 1 June 2016



### Main raw materials used in salmonid feed Vegetable raw materials production





#### Land animal bi-products



Additives







### Major changes in raw material usage



Fish meal Alternative proteins and starch Fish oil Vegetable oils



# Why did we change composition

- Price, competition, volatility
- Availability
- Sustainability
- Certification (ASC)
- Knowledge created via R&D.
  - That's the real competition
- Cannot be dependent on a limited resource with huge variability in price and availability.



# Raw materials used in fish feed are commodities with high price volatility



Source: Holtermann index



# FFDR for fishmeal and oil defined by

# ASC

| eFCR = Feed used/ Fish harvested Trimming meal/oil can be excluded from the                              | Trimming meal/oil can be excluded from the calculation |  |  |  |  |
|--|--|--|--|--|--|
| 5 % oil if South America fish  |  |  |  |  |  |
| FFDR Meal= (eFCR x Fishmeal incl %)/24% (fishmeal yield) 7 % oil if European fish (has higher oil yield) | 7 % oil if European fish (has higher oil yield)        |  |  |  |  |
| FFDR oil = (eFCR x Fishoil content%)/ 5 / 7 % ( fishoil yiels)   |  |  |  |  |  |









10

### Fish In – Fish Out Ratio (FIFO) – Net producer of fish in 2017



IFFO view on calculation

FIFO ratio = (Level of fishmeal in diet + Level of fish oil in the diet)  $\times$  FCR Yield of fishmeal from wild fish + Yield of fish oil from wild fish





# Effect of Vegetable protein is not always positive

White/pale PC (distal)

Normal PC (proximal)



## Effect fishmeal on enterocyte histology



Abormal (low fishmeal) No low fishmeal additive



Highly vacuolated enterocytes (100X)



### Pyloric ceaca effect.





# Major negative effects can be eliminated





### Effect of LF additives on growth in Salmon +Cont 30 % FM -Cont 10 %FM





### Salmon Feed Development in Norway & Feed Conversion Ratio (FCR)





# If we did not do anything THE ALTERNATIVE

- Historical 40% fishmeal og 30 % olie in the diets
- Today's recipes would be 700 USD/ton higher in price or 50 % higher
- Assumptions 5 mill ton salmonid / seabass/bream feed.
- FISH MEAL
- 15 % incl => 750.000 ton
- 40 % incl => 2.000.000 ton 1,250.000 ton dif
- FISH OIL
- 10 % olie => 400.000 ton
- 30 % olie=> 1.500.000 ton World volume MAX. 800.000 ton.
- Salmon could max get 500.000 ton => 1,6 mill to foder with 30 % fish oil.
- Fish meal
- 15 % Indbl 255.000 ton
- 40 % indbl 680.000 ton
- If we should use only fish oil i our diets we would only be buying 255.000 ton fishmeal



## **Trends in salmon feed**

- No Growth in volume in last few years.
- Chile recovering somewhat
- High prices for salmon => strong demand side,
- Quality of fishmeal
- Cadaverin/ Histamin in grower diets less of importance ??
- Dillution effect
- Huge variation in Digestibility 83-94 %
- TODAY's shadow price 1200 USD / ton May 2017
- We (Biomar) used significant more fishmeal in 2017 than in 2016 DUE TO COMPETTIVE PRICES

- Higher degree of differenciation
  - w3 EPA/DHA
  - Origen of soures
  - Verlasso AquaChile, Biomar Lerøy,
  - Whole foods custom made product
  - No etoxyquin.
    - Level of Dioxins etc based on legal limits
      - Bespoke products with higher margins which substitude growth

Certification BAP, ASC, label R, private standards



## Thanks for you attention

Niels Alsted Fefac