

Nordic Feed Evaluation System



Harald Volden,
TINE SA

Norwegian University of Life Sciences
NorFor scientific group



- A feed evaluation system for cattle
 - Net energy
 - Metabolizable protein
 - Feed intake
- Animal requirements and feeding standards
- Feed table
- Feed analysis and ring tests
- IT development



New feed evaluation system?

Key questions:

- What are the driving forces? Who wants a new system?
- Who are the customers?
- Who has the financial power to develop and operate a new system in a long term perspective

The Nordic dairy cattle advisory organisations

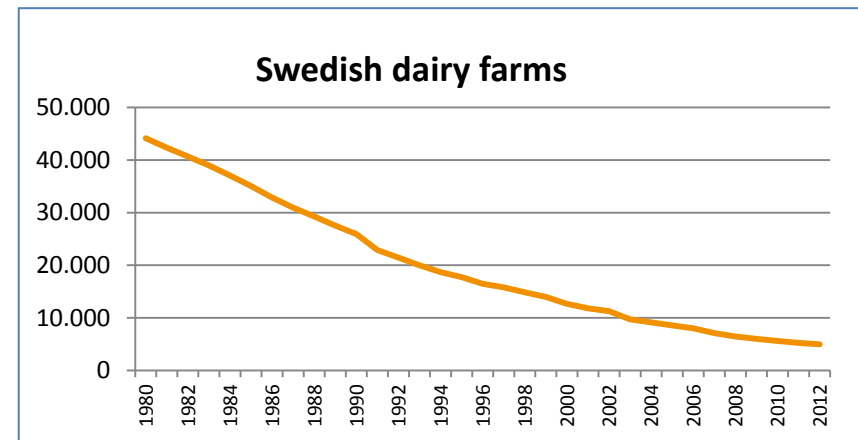




Changes in Nordic dairy cattle production

– Number of dairy farms has decreased (1990-2012)

- Denmark \approx 75% (3,800)
- Sweden \approx 70% (4,000)
- Finland \approx 70% (10,400)
- Norway \approx 60% (10,600)
- Iceland \approx 50 % (660)



– Number of cows has decreased (1990-2012)

- Denmark \approx 20% (580,000)
- Sweden \approx 30% (345,000)
- Finland \approx 30% (280,000)
- Norway \approx 30% (240,000)
- Iceland \approx 15 % (26,000)

A cost sharing strategy is important in development and implementation of a new feed evaluation system
➔ 12-14 mill €

NorFor is owned by



TINE

www.tine.no



KNOWLEDGE CENTRE FOR AGRICULTURE

Knowledge Centre for agriculture

www.vfl.dk



Växa Sverige

www.vxa.se

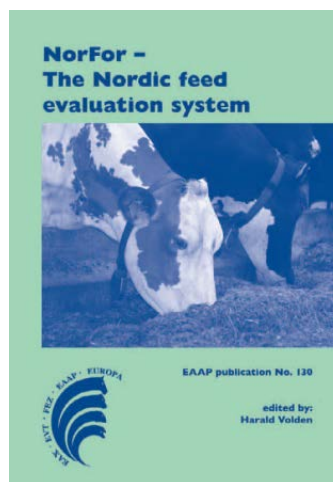
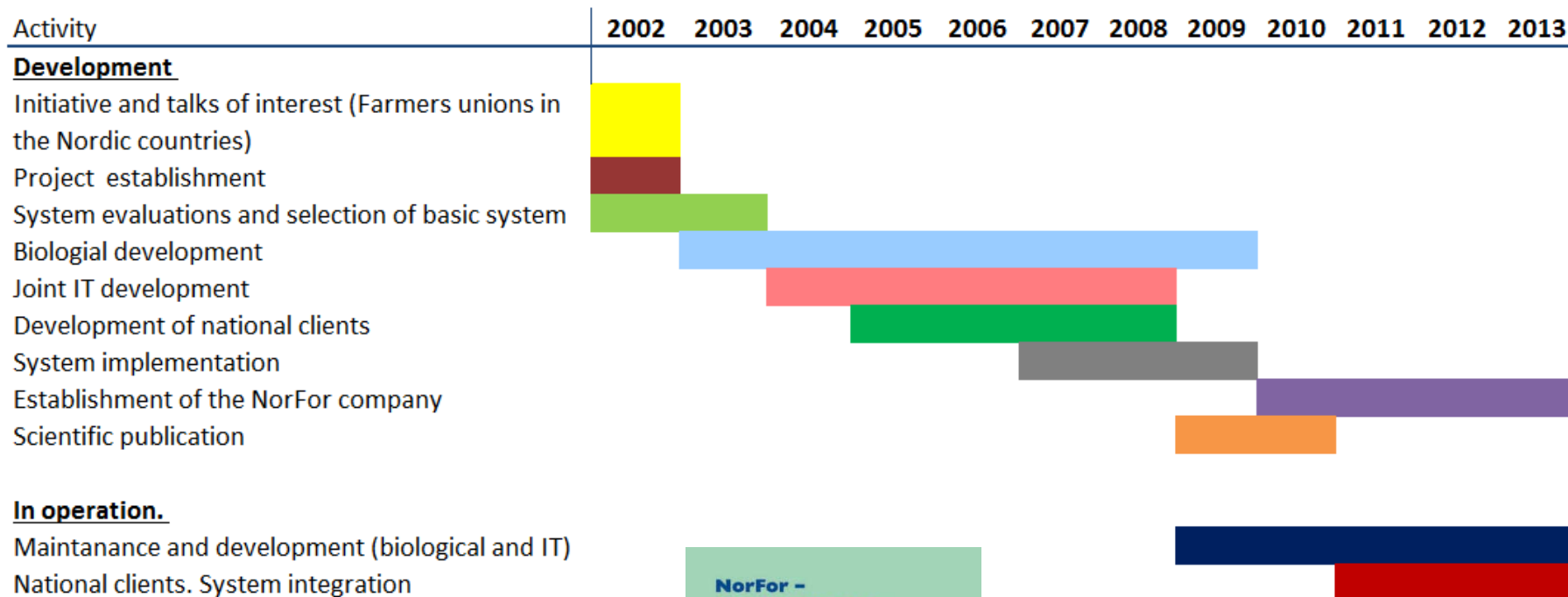


Farmers Association of Iceland

www.bondi.is

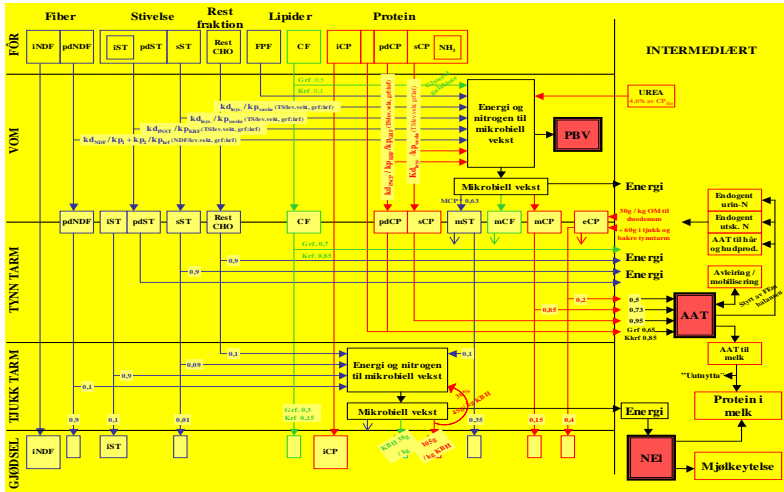


Development of NorFor

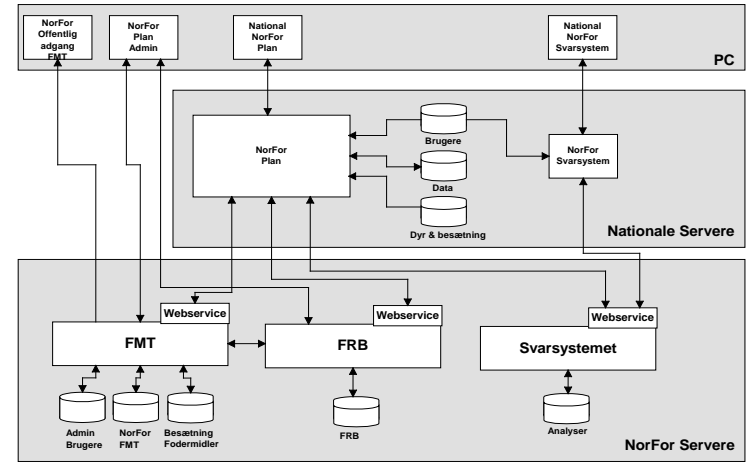


The four basic elements in NorFor

Biological

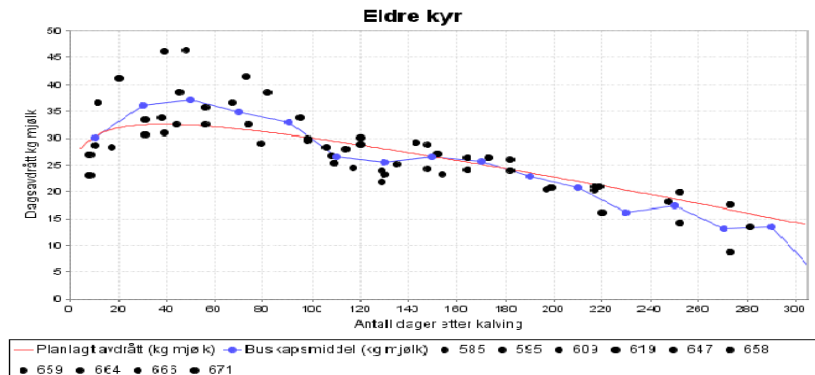


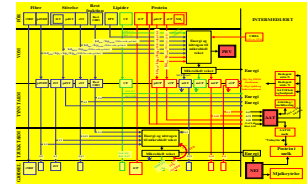
IT and data integration



National client. Ration formulation and optimisation

Production and feeding control





Biological elements in NorFor

A semi-mechanistic feed evaluation system that:

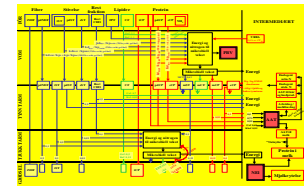
- Takes into account interactions and non-linear relationships between animal characteristics, diet composition and feeding level when predicting nutritive values and animal performance



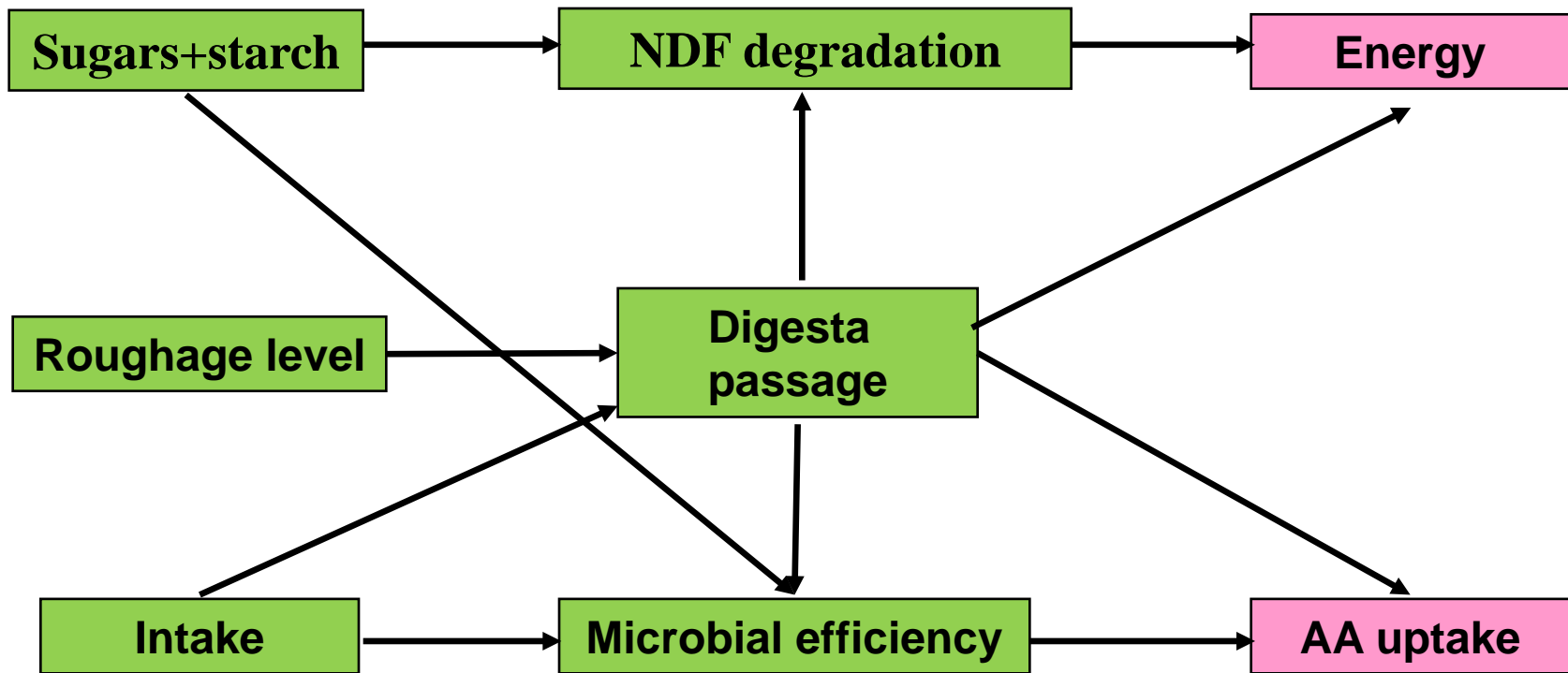
*Standard vs. "real" feed value.
An individual feed has no fixed value*

A ration evaluation system

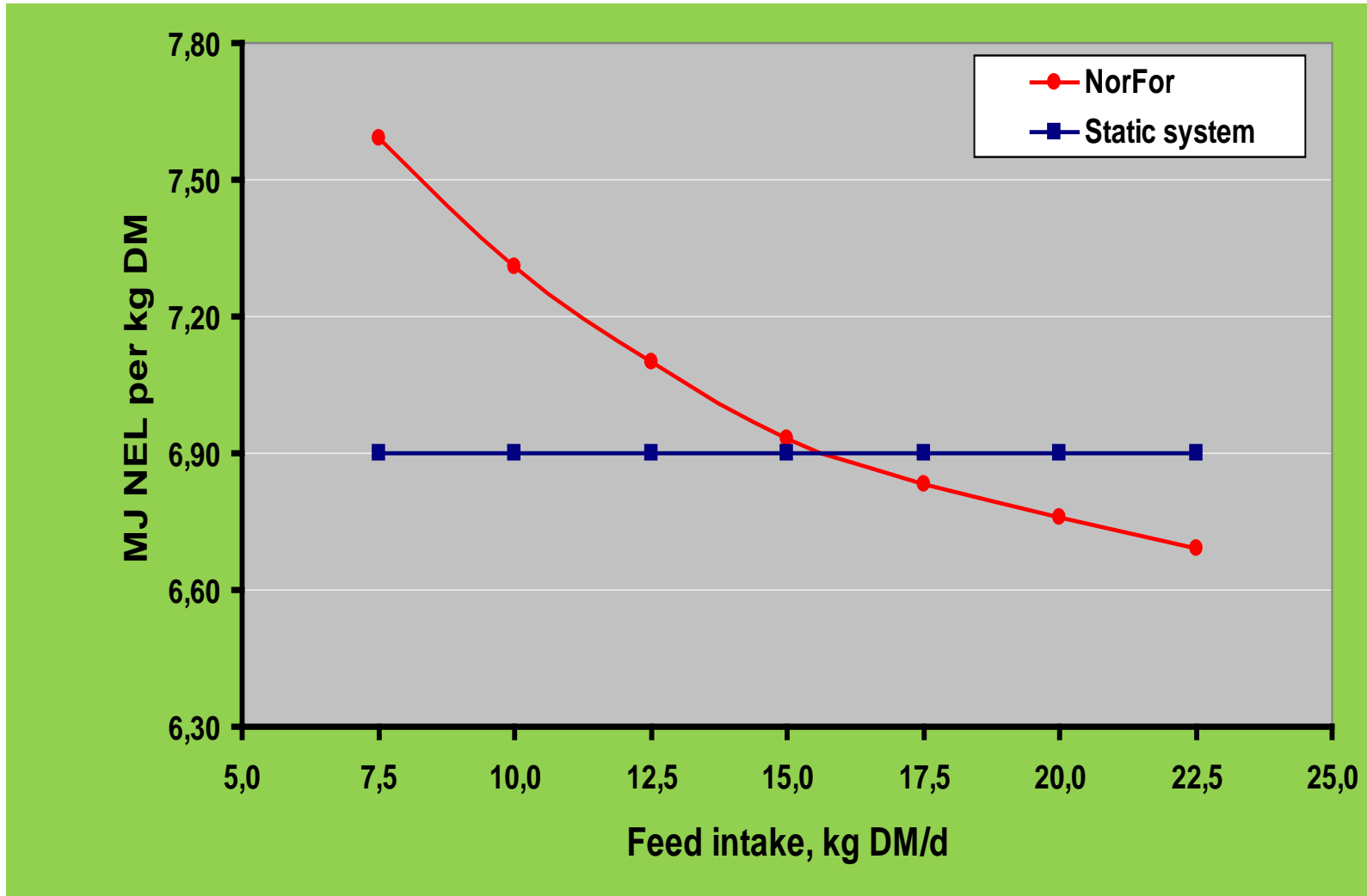
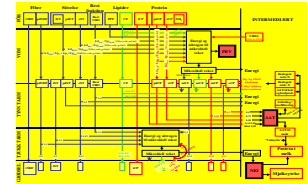




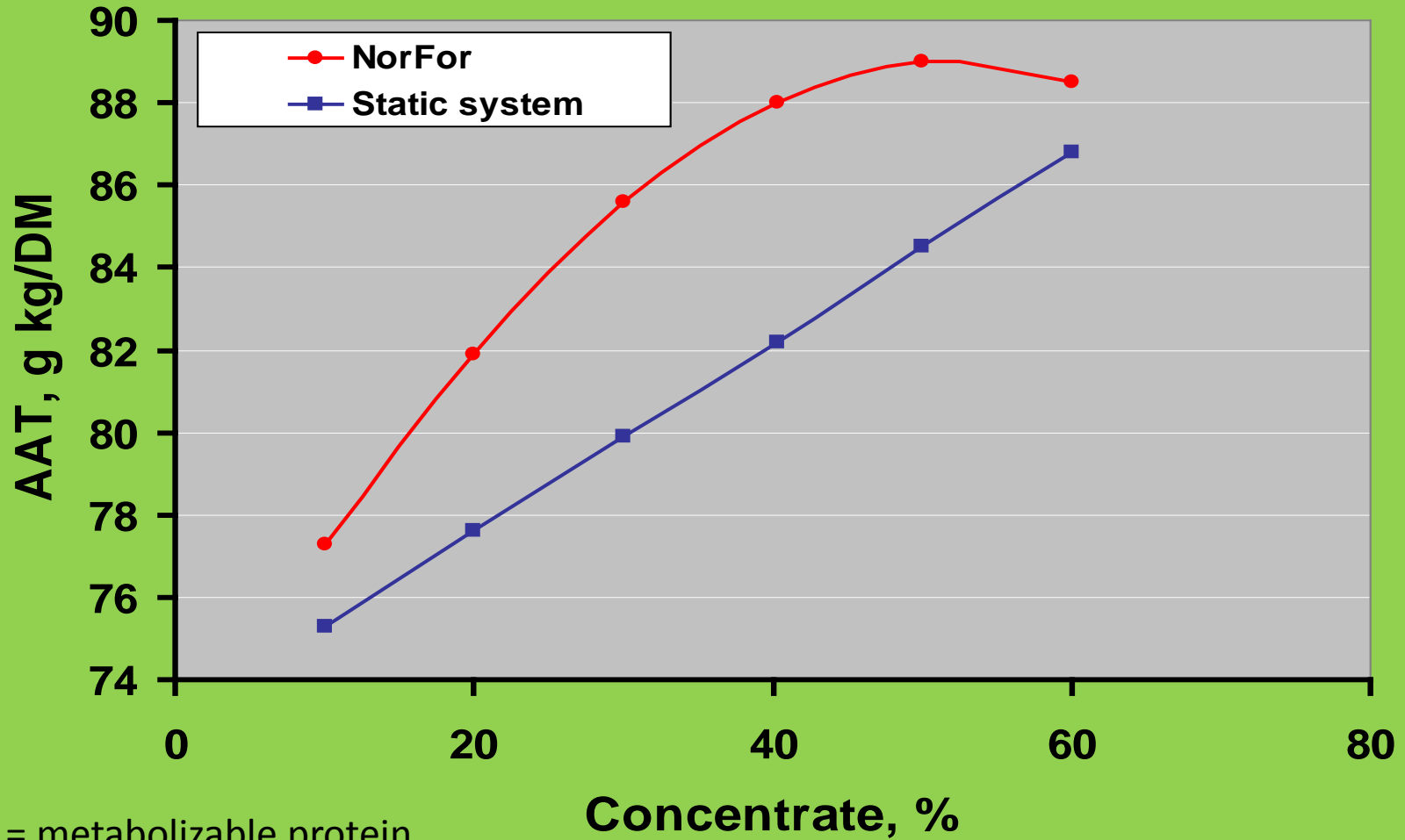
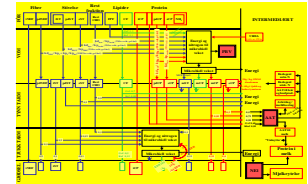
Some model interactions



Biological elements in NorFor



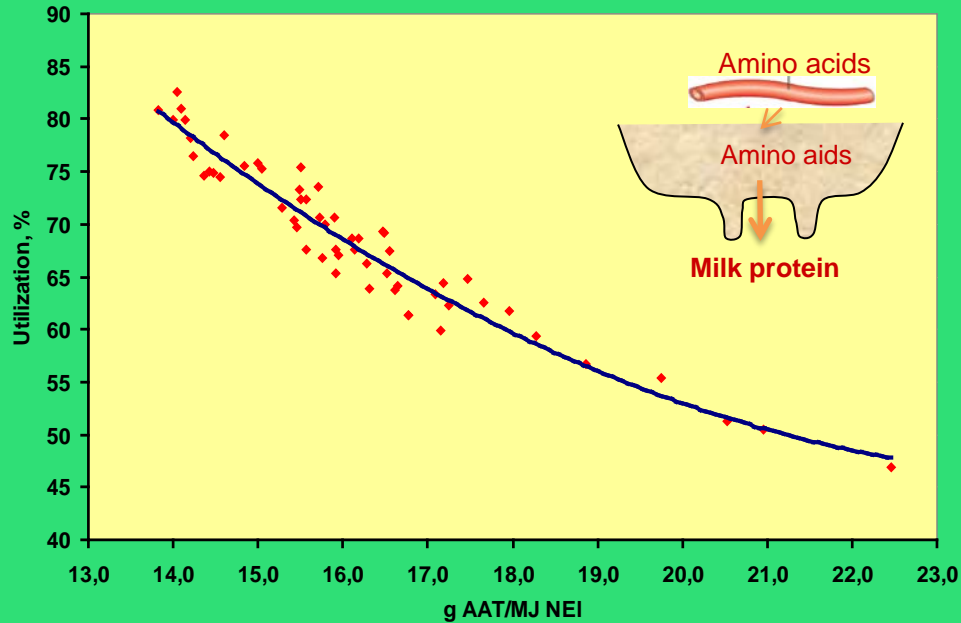
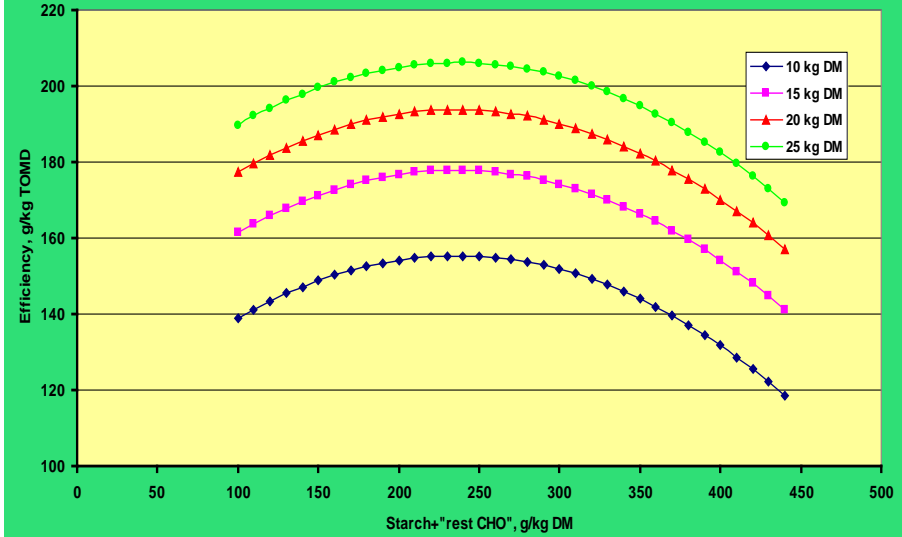
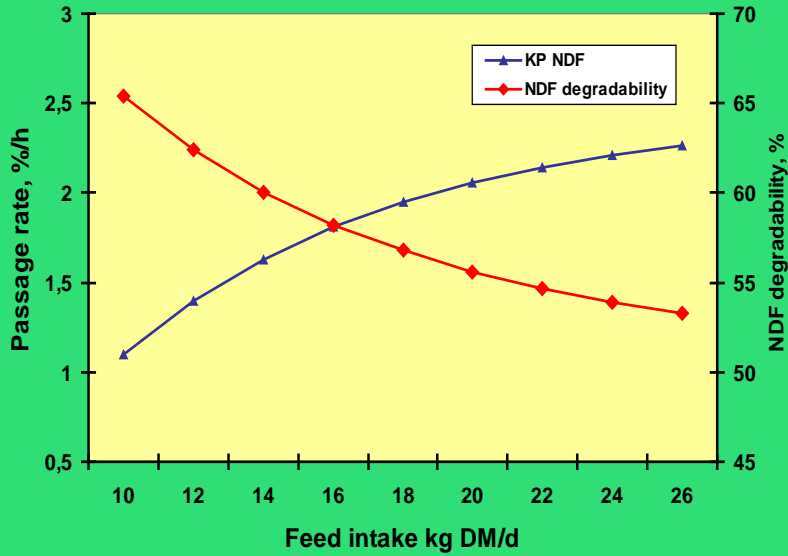
Biological elements in NorFor



AAT = metabolizable protein

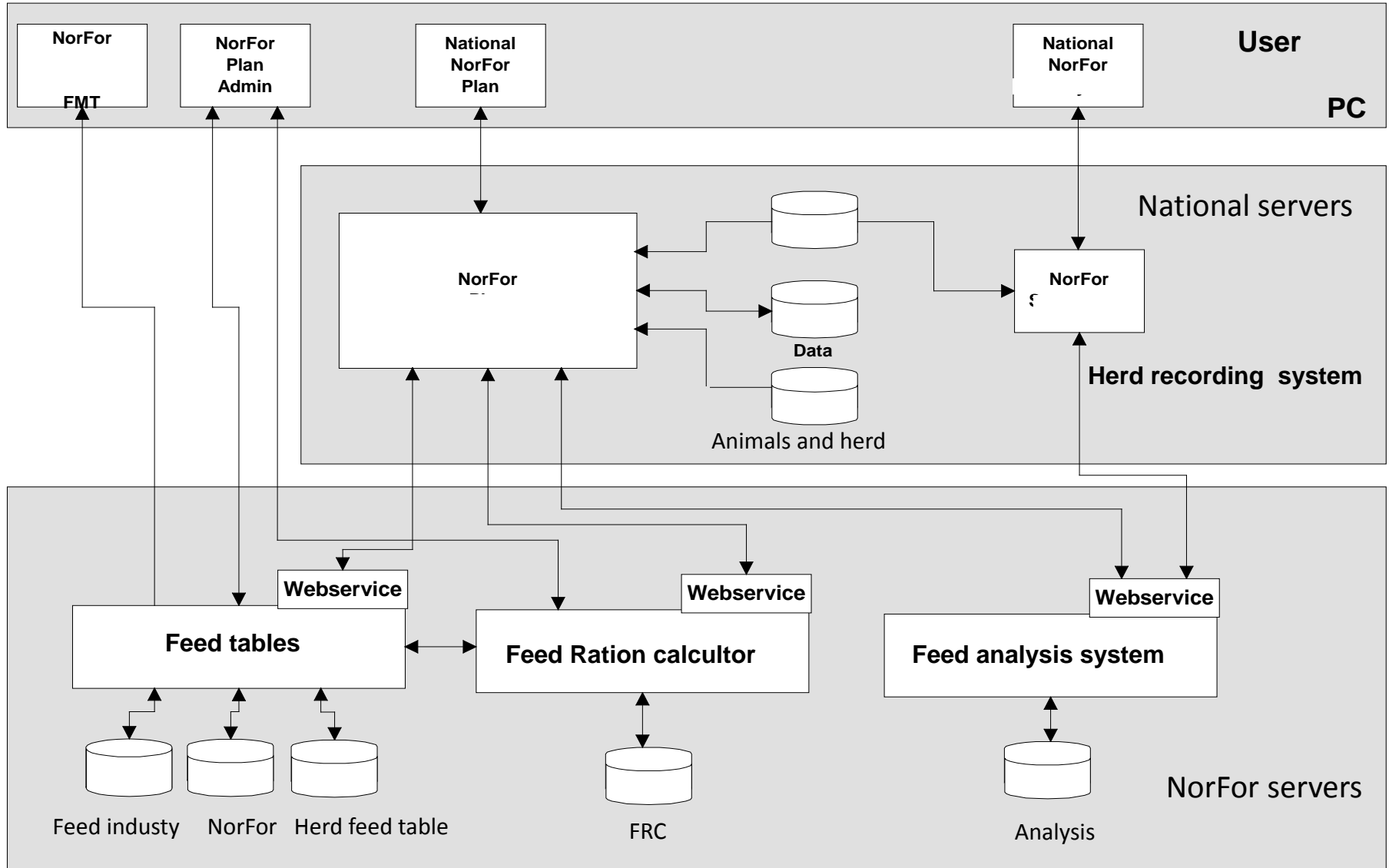


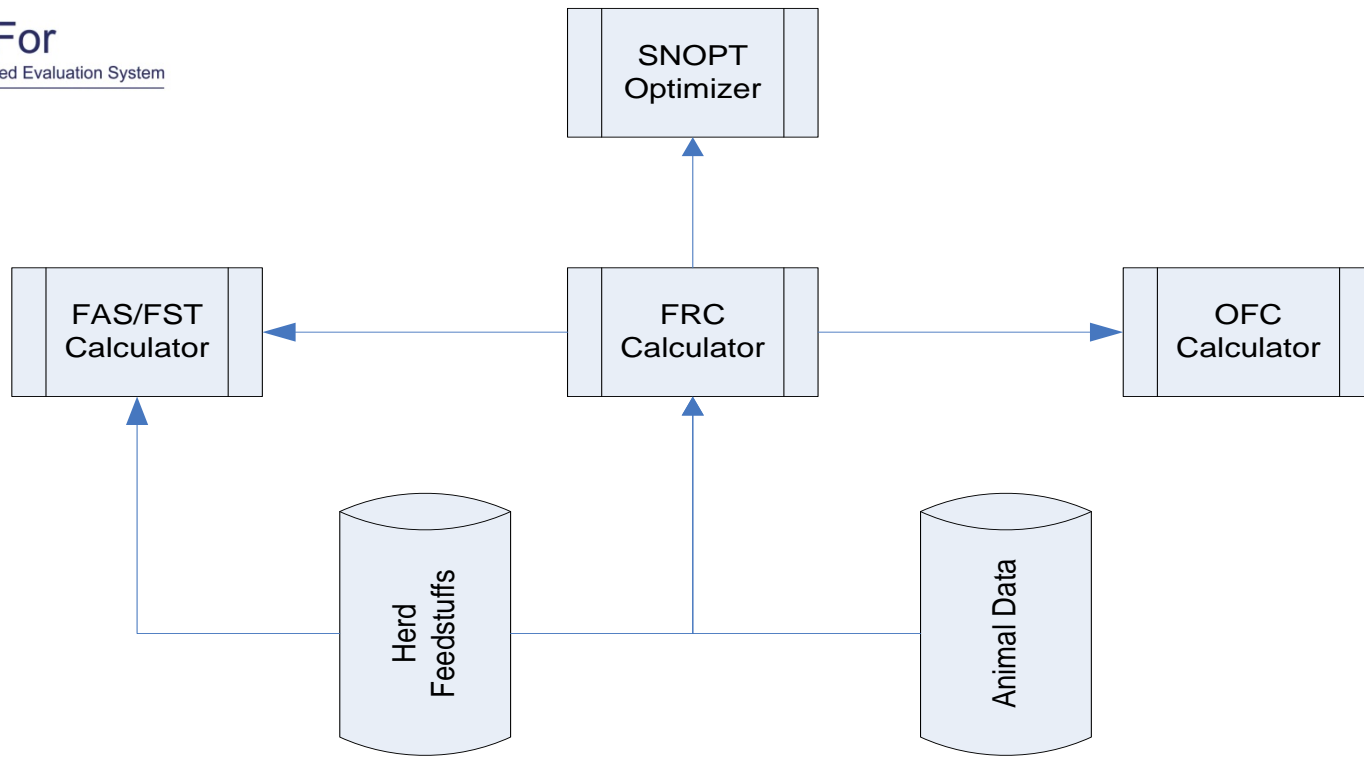
Biological elements in NorFor



NorFor IT.

An Online and web-based system





The SNOPTTM Optimizer. A high performance non-linear optimiser.
Auto-balance a feed ration at the lowest possible cost
Performance speed: online, 100 individual cows, 5-10 sec



National client. Practical ration formulation and optimisation

Possible variables: 112

Ration cost: 1

Feed intake: 7

Energy: 9

Protein and amino acids: 13

Nutrients: 12

Rumen metabolism: 23

Total tract digestibility: 5

Chewing time : 1

Minerals: 23

Vitamins: 7

Nitrogen excretion: 4

Climate: 1



The screenshot shows the TINE Rådgiving og Medlem website. At the top, there is a navigation bar with the TINE logo, the URL www.tine.no, and links for NYHETER / PRESSE. Below this is a green header with the text 'TINE Rådgiving og Medlem' and a login area for 'Harald Volden (VOLHAR)' with 'Min profil' and 'Logg ut' buttons. A secondary navigation bar includes 'STARTSIDE', 'OM OSS', 'NØKKELTALL', and 'REGIONNYTT'. The main content area is titled 'TINE OptiFør Ku' and features a sidebar with a navigation menu (Admin, Min buskap Ku, Mine data i Kukontrollen, Reg. data til Kukontrollen (gml), Velg produsent, Kukontrollen, Fjøsloggen, Dyrehelse, Føring, Føranalyser, TINE OptiFør Ku, TINE OptiFør Ungdyr, Ungdyr, TINE Prod.kontroll) and a main content area with navigation links (Hjem/Arkiv, Listevalg, Buskap, Dyr, Fårmidler, Beregning, Info), product information (Produzent: 01 28 0282 Thune Rolf Øyvind, Distr/rådg: 110/14, Datagrunnlag: Pr gruppe/ku (egendefinert), Avdrått: Egendefinert, Plandato: 25.02.2013), and a welcome message: 'Velkommen til bruk av TINE OptiFør Ku!'. A detailed description of the tool follows, stating it is based on the Nordic feed evaluation system and is used by TINE advisors and farmers. A disclaimer at the bottom states that the user is responsible for the accuracy of the results.

NorFor standard

1. Ration cost
2. Fill value (feed intake)
3. Energy balance
4. Energy intake
5. AAT/NEL ratio
6. PBV
7. Fatty acids
8. Rumen load index
(NDF degradation)
9. Degradable sugars + starch



Future

- Continuous development of the biological parts of the system
 - Move towards a substrate based system
- Integration with modern herd management systems
 - Biology and technology
- Develop response functions to better integrate production and economy
 - Marginal response functions
- International cooperation



Thank you for your attention

