

Economic values of milk, fat and protein in the yield index

Freddy Fikse

NAV



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

Weights in the yield index reflect net income from milk

NAV



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

Weights in the Yield index

Weighting of kg milk, kg fat and kg protein in yield index

	Nordic red breeds	Holstein	Jersey
Milk, kg	-0.25	-0.25	-0.30
Fat, kg	0.55	0.55	0.65
Protein, kg	0.70	0.70	0.65

Why a negative weight on kg milk?

- Dairies how low/negative weight on kg milk
- Cost to produce lactose



ARLAS MJÖLKPRIS

Arlas a contopris för konventionell mjölk höjs med 10,9öre/kg (1,0 eurocent/kg) i december 2023. Därmed blir Arlas a contopris för konventionell mjölk med högsta kvalitet baserad på GMO-fritt foder med deltagande i ONE milk collection, klimatberäkningen och hållbarhetsersättningen 448,3 öre/kg.

Arlas a contopris för ekologisk mjölk ökar med 21,8 öre/kg (2.0 €c/kg) i december 2023. Därmed blir Arlas a contopris för ekologisk mjölk av högsta kvalitet med deltagande i ONE milk collection, klimatberäkningen och hållbarhetsersättningen 515,5 öre/kg.

	KONVENTIONELL		EKO	
	01.11.23	01.12.23	01.11.23	01.12.23
Fettpris, SEK	49.39	50.71	57.52	60.16
Proteinpris, SEK	54.33	55.78	63.28	66.18
Avdrag för kostnader i samband med mjölkhämtningen, öre	-19.16	-19.16	-19.16	-19.16
Råvaruvärde	373.0	383.5	437.6	458.5
Högsta kvalitet	14.9	15.3	17.5	18.3
Inte GMO foder	10.9	10.9		
Klimatberäkning	10.9	10.9	10.9	10.9
Hållbarhetsersättning	18.0	18.0	18.0	18.0
Logistik- och övriga tillägg vid mjölkhämtning (ONE milk collection)	11.3	11.3	11.3	11.3
Baskostnader	-1.6	-1.6	-1.6	-1.6
A contopris	437.4	448.3	493.7	515.5
Garanterad efterlikvid, minimum	16.3	16.3	16.3	16.3
Konsolidering, maximum ¹	10.9	10.9	10.9	10.9
Arlapris	464.6	475.5	520.9	542.7

¹Exklusive ränta på individuellt insatskapital och effekten av taket på individuellt insatskapital



ARLA's price model – principle

NAV



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

Two cows – their yield

	Milk (kg)	Fat, %	Protein, %	Fat, kg	Protein, kg
Maja	52.7	3.8	3.4	2.0	1.8
Nellie	42.6	5.5	3.7	2.3	1.6

Kg ECM = Milk kg × 0.25 + fat kg × 12.2 + protein kg × 7.7

$$\begin{array}{l} 52.7 \times 0.25 + 2.0 \times 12.2 + 1.8 \times 7.7 = 51.4 \\ 42.6 \times 0.25 + 2.3 \times 12.2 + 1.6 \times 7.7 = 51.4 \end{array}$$

NAV



Two cows – their yield & income

	Milk (kg)	Fat, %	Protein, %	Fat, kg	Protein, kg
Maja	52.7	3.8	3.4	2.0	1.8
Nellie	42.6	5.5	3.7	2.3	1.6

Income (SEK) = Milk kg × 0.14 + fat kg × 66.0 + protein kg × 59.4

$$\begin{aligned} & 52.7 \times 0.14 + 2.0 \times 66.0 + 1.8 \times 59.4 = 246.1 \\ & 42.6 \times 0.14 + 2.3 \times 66.0 + 1.6 \times 59.4 = 254.4 \end{aligned}$$

Two cows – their yield & income

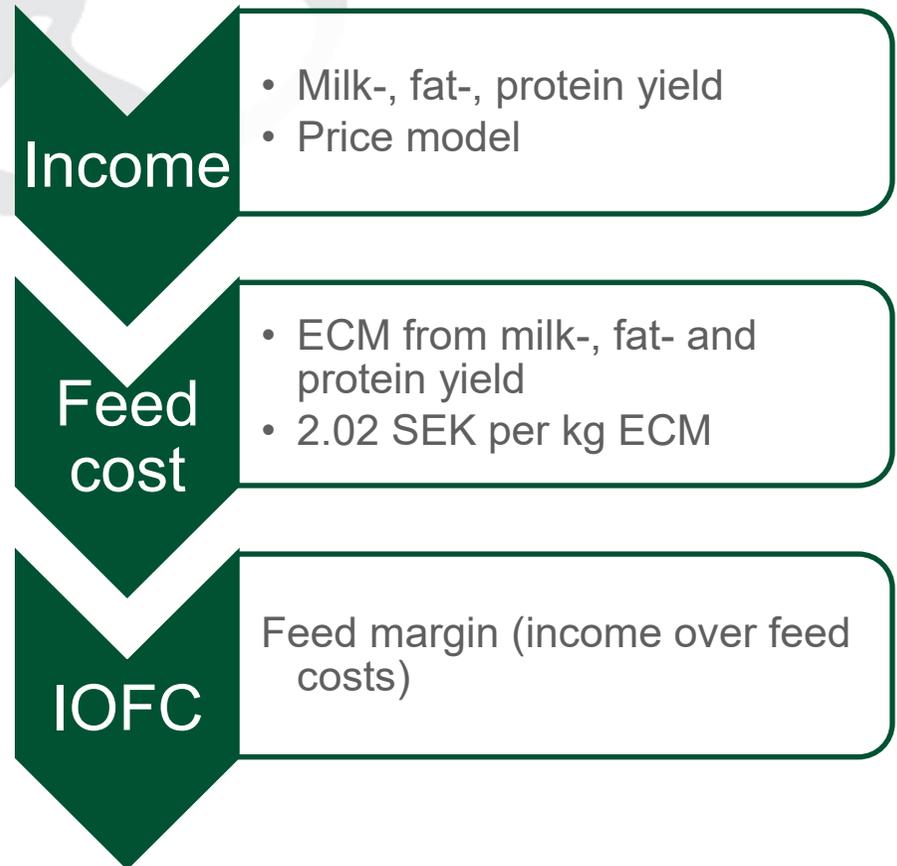
	Milk (kg)	Fat, %	Protein, %	Fat, kg	Protein, kg
Maja	52.7	3.8	3.4	2.0	1.8
Nellie	42.6	5.5	3.7	2.3	1.6

	ECM, kg	Income, SEK	Milk price (SEK/kg)	Milk price (SEK/kgECM)
Maja	51.4	246.1	4.67	4.79
Nellie	51.4	254.4	5.97	4.95



Feed costs

- **Directly related to kg ECM**
- **Average for 2022 (conventional farm)**
2.02 SEK per kg ECM



Feed margin

1. Calculate feed margin from a cow's milk, fat and protein yield
2. Negative weight on milk yield \Rightarrow importance of contents

$$\begin{aligned} \text{IOFC (SEK)} &= \text{Milk kg} \times \boxed{-0.37} + \text{fat kg} \times \boxed{41.4} + \text{protein kg} \times \boxed{43.8} \\ &52.7 \times -0.37 + 2.0 \times 41.4 + 1.8 \times 43.8 = 142.3 \\ &42.6 \times -0.37 + 2.3 \times 41.4 + 1.6 \times 43.8 = 150.6 \end{aligned}$$

Why a negative weight on kg milk?

Income:

$$0.14 \times \text{kg milk}$$

Raw milk value + additional values

Feed costs:

$$\begin{aligned} 0.51 \times \text{kg milk} &= 2.02 \times \text{kg ECM} \\ &= 2.02 \times 0.25 \times \text{kg milk} \end{aligned}$$

Feed margin: $0.14 - 0.51 \text{ kg milk} = -0.37 \times \text{kg milk}$

NAV



All these weights ...



	Kg Milk	Kg Fat	Kg Protein
ECM	0.25	12.2	7.7
Income**	0.14	66.0	59.4
Feed margin***	-0.37	41.4	43.8

** ARLA including add-ons
*** 2.02 SEK per kg ECM

- **Lower weight on kg milk in milk pricing model than in ECM calculation**
 - It costs to produce lactose, not much income from transporting water
- **F:P higher in ECM than in milk pricing model**
 - It costs more to produce fat

NAV Higher weight on Protein than on Fat in feed margin

All these weights ...



	Kg Milk	Kg Fat	Kg Protein
Feed margin ***	-	++	++
Yield index	-	++	+++

Selection for yield index aims at improving feed margin



Bull selection

NAV



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

VR Berner ^{NTM} 27

Födelsedatum	2021-12-15
Uppfödare	Gårdejer Per Möller Kaasing
Avelsvärdering	Nordiska röda raser
Int. ID	RDCDNKM000000038486

Stamboksnummer	
FIN	48725
SWE	138486
DNK	38486

Egenskap	Antal döttrar	Antal besättningar med döttrar i
Avkastning	-	-
Juverhälsa	-	-
Exteriör	-	-

Ras	FAY	SRB	ORDM	CAY	BSW	HOL	NRF
%	47	30	6	6	5	4	1

Far	VR Barbar RDCFINM000000048388
Mor	RDCDNKF003136303579

[Tillbaka till avelsvärden](#)
[Monogena egenskaper](#)

 Senaste beräkningsdatum är **02.04.2024**
 Visa effekt i Danmark Finland Sverige

Egenskap	Avelsvärde	NAV länderna		Kommentar	Sverige	
		Tjurens effekt	Medeltal		Tjurens effekt	Medeltal
Avkastning	113					
Mjök (305-d, kg)	72	-978,8	9761		-989,7	9967
Fett (305-d, kg)	112	+16,3	433		+16,0	443
Protein (305-d, kg)	99	-1,1	355		-1,1	369

NAV



Nordisk Avlsværddi Vurdering • Nordic Cattle Genetic Evaluation

VR Berner

– compared to base and ‘What-if’

	Kg Milk	Kg Fat	Kg Protein	Kg ECM	Feed margin (SEK)
Base population	9 967	443	369	10 737	30 895
VR Berner	8 977 (-990)	459 (+16)	368 (-1)	10 677	31 875
”What-if Berner”	9 967 (0)	459 (+16)	368 (-1)	10 924	31 513

NAV



Take home

Weights in the yield index reflect net income from milk

Selection for yield index aims at improving feed margin

NAV



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation



Thank you!

NAV



Nordisk Avlsværdis Vurdering • Nordic Cattle Genetic Evaluation