

Crossbreeding trials with Fleckvieh

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Background (1):

- **Animal Scientist - on dairy cattle**
- **Elsenburg dairy herd: 1902 – 120 H, 62 J, 40 FX**
- **Research projects include:**
 1. **Genetics**:
 - breeding program for dairy herds
 - crossbreeding trials with Fleckvieh
 2. **Nutrition**:
 - Evaluating locally produced forages
 - Different energy sources in TMR
 - High fat/low starch diets on reproduction
 3. **Housing**:
 - Effect of shade on milk yield
 - Free stall use and design
 4. **Reproduction**:
 - Genetic parameters for fertility traits
 - Standard of reproduction management

Eisenburg Research farm:

- **Western Cape Department of Agriculture**
- **50 km from Cape Town - wine and wheat production**
- **Mediterranean climate: - warm dry summers and
- cold wet winters, no snow**
- **Dairy farming mostly intensive feedlot style**
- **Forages are oat hay/silage, wheat straw, lupins**
- **Further from Cape Town pasture based systems
also possible**
- **Use both systems at Eisenburg**

Background (2):

- **High milk yields = Profitable dairy farming**
- **Moderate negative correlated to fertility**
- **Reduces profitability and genetic improvement**
- **Lifetime production is lower**
 - **more cows are culled**
 - **cows longer in lactation = DIM increases**
 - **more cows in late lactation = lower production**
- **Crossbreeding is being considered to overcome poor fertility**

Background (3):

- **Many dairy farmers are already doing some cross breeding**
- **Speculative claims on small data sets**
- **No scientific cross breeding studies have been done in South Africa**
- **Local dairy breed societies are not supportive of crossbreeding**
- **Milk Recording Scheme makes no provision for the identification of cross bred animals**
- **Describe as: Dairy x dairy or Beef x dairy – for any breed**
- **Is being changed because of this study**

Why a dual purpose breed?:

- **Little scientific data available - anecdotal**
- **USA studies use Jerseys, Scandinavia breeds, Normande and Montbéliarde**
- **A large beef market in SA and Africa**
- **Effect of intra-muscular fat on fertility?**
- **Suitability for pasture based dairy farming?**
- **Dairy ranching for emerging farmers?**
- **Use Fleckvieh in bottom 1/3 of herd instead of a beef bull – get useful milkers**

Fleckvieh projects at Elsenburg:

- Conducting 2 projects:
 1. Fleckvieh sires on Holstein cows
 2. Fleckvieh sires on Jersey cows
- Compare crossbreds to purebreds in
 1. veal production: ~5 m
 2. beef production from pasture: ~18/21 m
 3. milk yield of cows per lactation and productive life

Basic aim:

Compare cross bred to pure bred animals

Results - Veal calves ~ 5m:

Parameters	Holst	Fleck	P
Number of calves	14	14	
Start weight (kg)	46	41	0.15
LW at 5m (kg)	197	209	0.01
ADG to 5m (kg)	1.016	1.071	0.31

Holstein veal:



Fleckvieh veal:



H and FxH young steers beef:



H and FxH steers at 17m of age:



Results: Beef ~18m:

Parameters	Holst	Fleckv	P
Number	14	14	-
Start weight (kg)	45.3	44.1	0.56
ADG (kg)	0.814	0.889	0.01
18m LW (kg)	494	533	0.01
Cold carcass (kg)	243	267	0.01

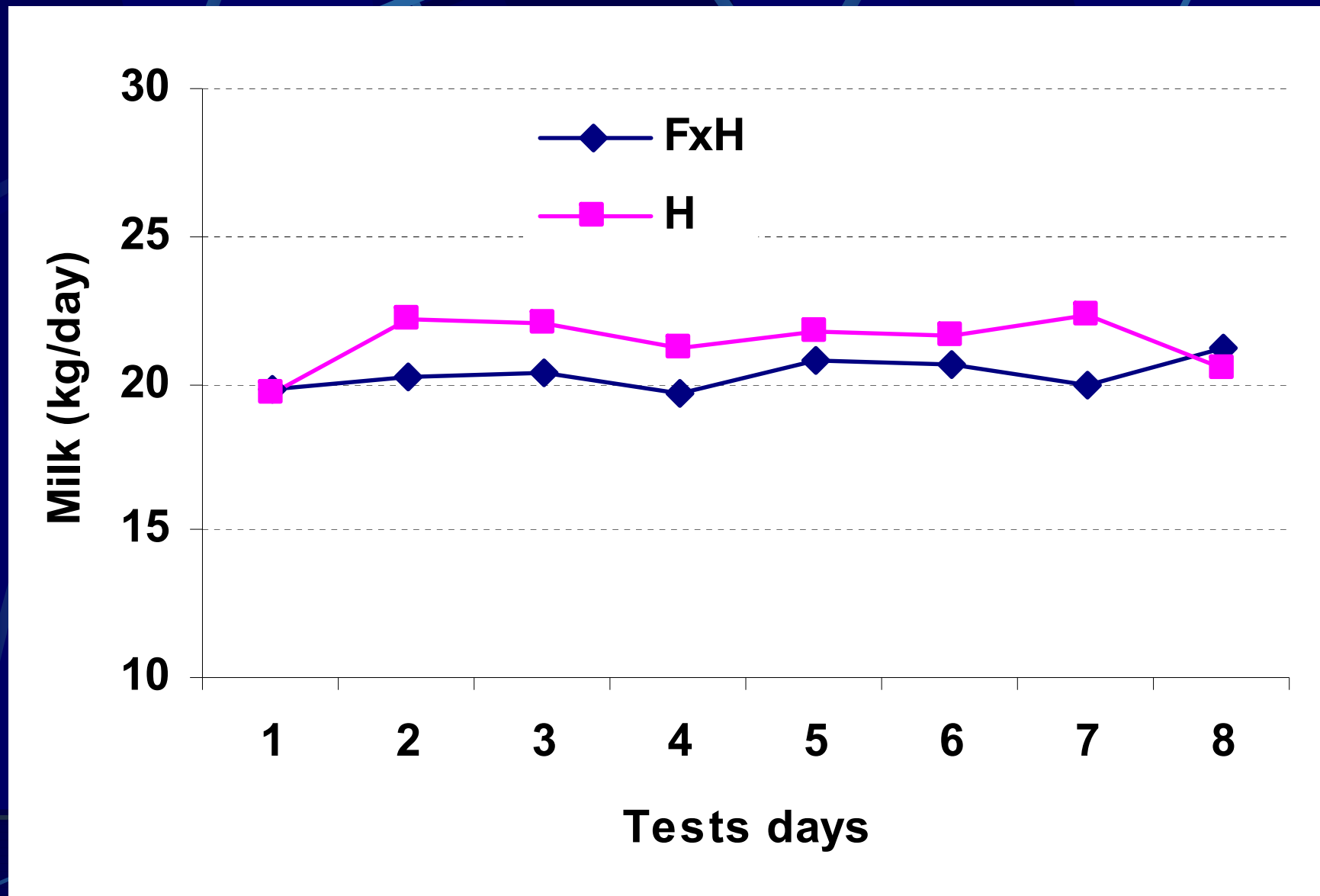
Braams feedlot trial:

Parameters	Holst	Simm	FxH	FxJ
Start weight (kg)	223	270	240	209
End weight (kg)	429	471	436	369
Days fed	110	87	96	99
ADG (kg)	1.79	2.31	2.04	1.62

Milk yield performance:

Parameters	Holst	Fleckv	P
Number	22	23	-
Milk (kg)	6519	6109	0.30
Fat (%)	4.02	4.29	0.01
Fat (kg)	259	260	0.98
Protein (%)	3.32	3.49	0.01
Protein (kg)	215	213	0.82
Milk price (R/l)	1.90	2.02	1.06

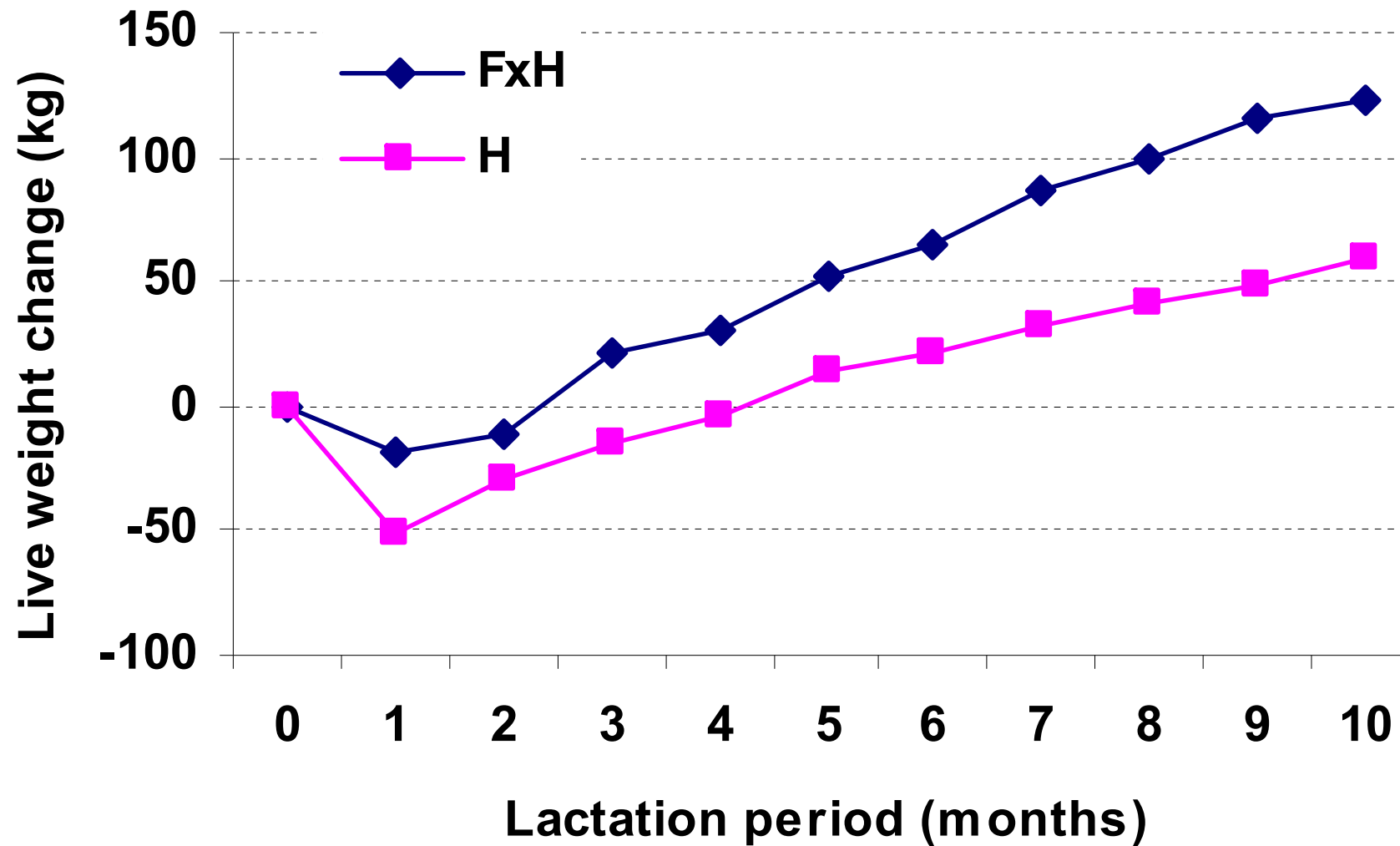
Lactation curve for H and FxH:



Reproduction first lactation:

Parameters	Holst	Fleck
Number	22	23
Age first AI (m)	14.7	15.0
AFC (m)	26.4	25.7
Interval C-first AI (d)	90	74
% First AI <80 dim	0.55	0.65
Heat detection rate (%)	0.39	0.48
% PD < 200 dim	0.76	0.82

Live weight change for H and FxH:



Birth records for Holstein cows:

Parameters	Holst	Fleckv
Number of births	45	45
Heifers/Bulls	14/29	22/23
Calving ease <2	42	45
Calving ease >3	3	0
Ease of calving	1.29	1.04
Survival of calves (%)	0.93	0.91
Calf BW (kg)	38.5	39.2
Dam LW (kg)	634	690

Efficiency 2nd lact cows:

Parameters	Holst	Fleckv
Feed in “as is” (kg)	26.8	28.8
Residual feed (kg)	4.3	4.0
DM intake (kg)	19.5	21.4
Ave milk/day (kg)	29.3	28.9
Efficiency (kg FCM/kg feed)	1.51	1.41
Live weight (kg)	609	697
% of live weight	3.20	3.06

Birth records for Jersey cows:

Parameters	Jersey	Fleckv
Number of births	123	112
Heifers/Bulls	54/55	46/64
Calving ease <2	122	106
Calving ease >3	1	6
Ease of calving	1.04	1.19
Survival of calves (%)	0.89	0.90
Calf BW (kg)	25.1	31.9
Dam LW (kg)	464	486

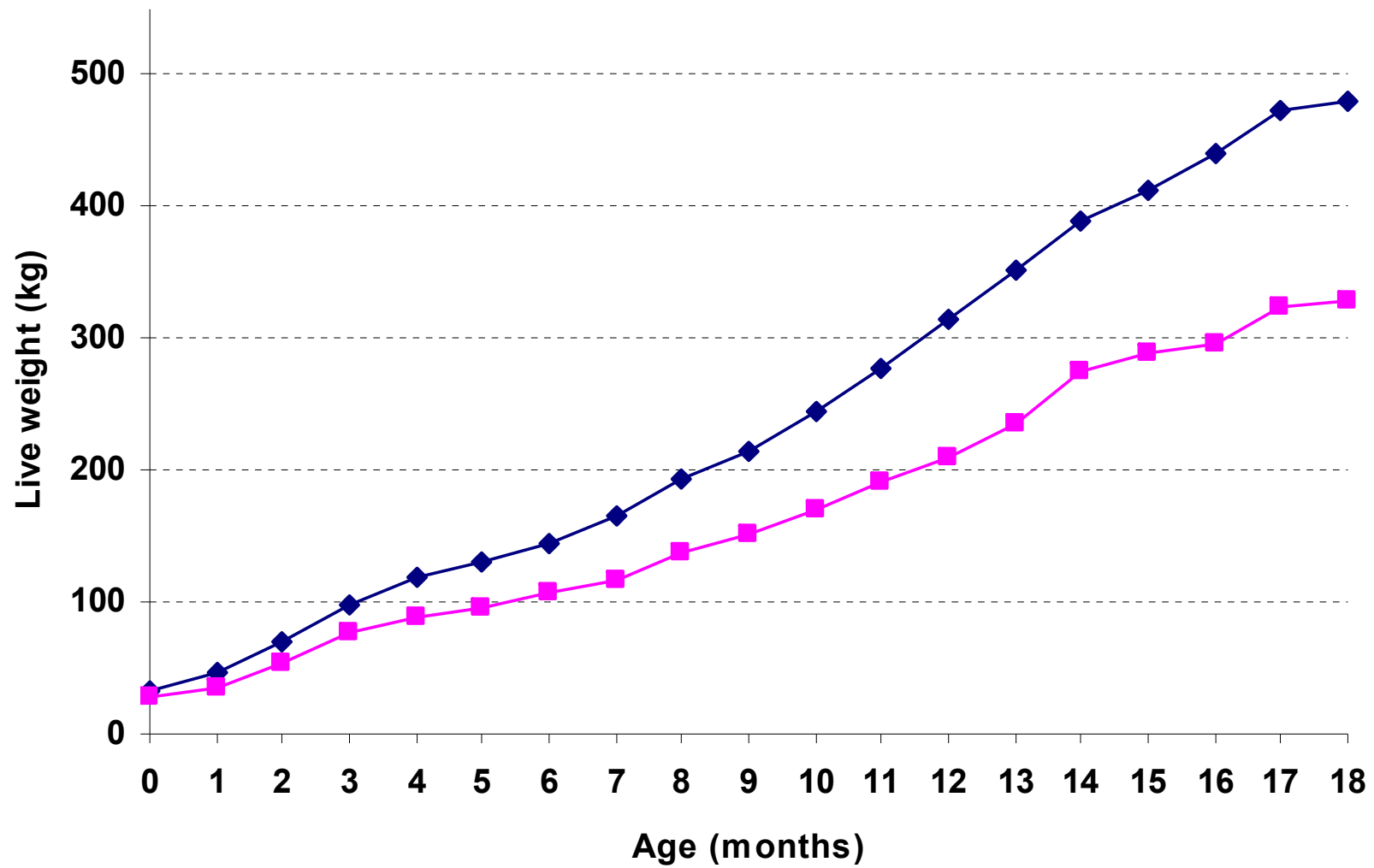
Growth Jersey veal calves ~200kg:

Parameters	Jersey	Fleckv
Number of calves	16	23
Birth weight (kg)	26.8	32.0
Marketing age (m)	7.1	6.3
End LW (kg)	192	199
ADG (kg)	0.769	0.849
Carcass weight (kg)	90	98
Dressing (%)	0.47	0.50

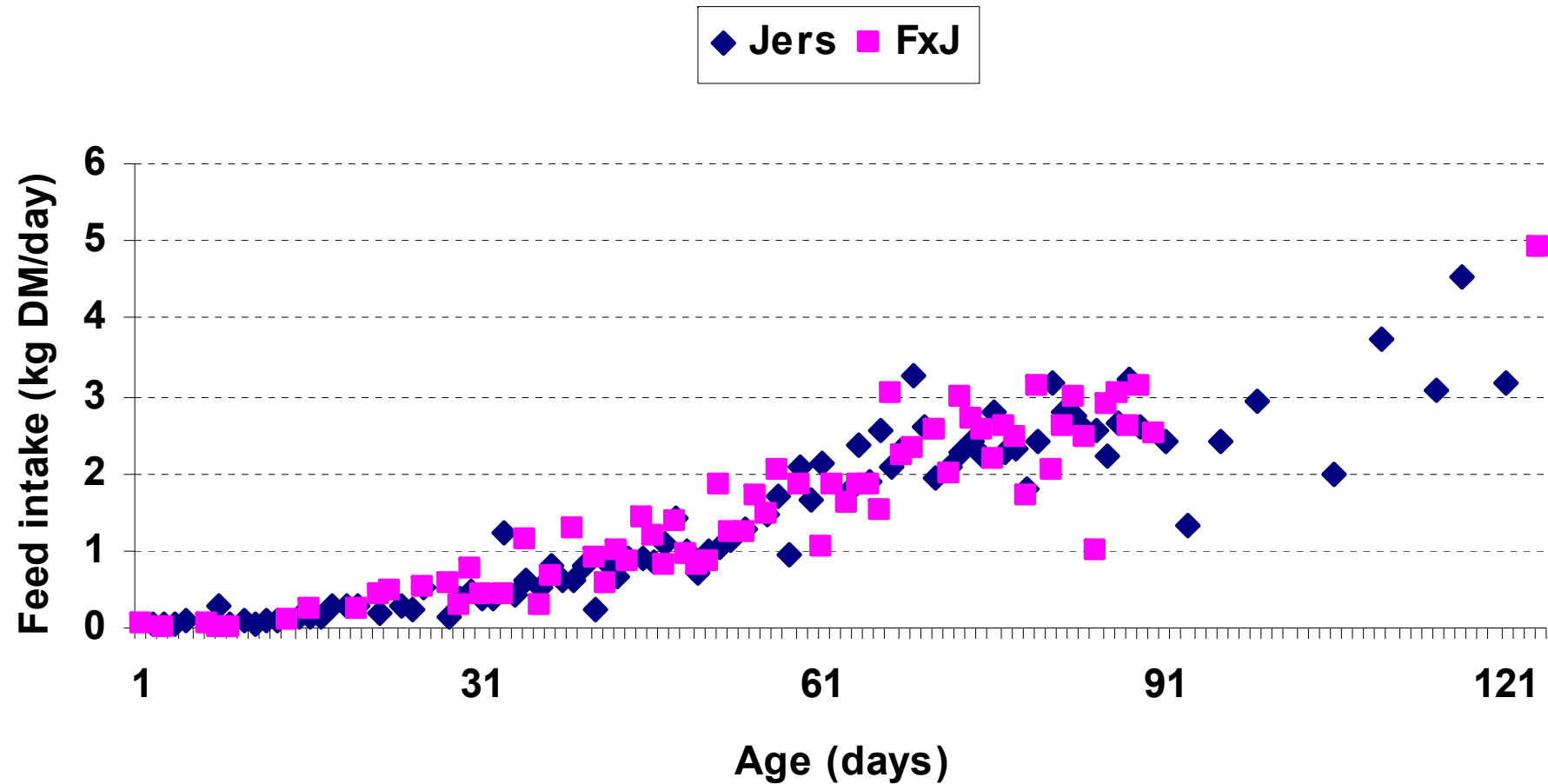
Growth Jersey steers - 21m:

Parameters	Jersey	Fleckv
Number of steers	6	5
Birth weight (kg)	26.6	32.6
End LW (kg)	333	498
ADG (kg)	0.474	0.718
Carcass weight (kg)	164	247
Dressing (%)	0.50	0.51

Live weight of J and FxJ steers:



Calf starter meal intake bull calves::



Jersey steer ~17 m of age:



FxJ steer ~17m of age:



J and FxJ heifer calves:



Outputs:

- **5 Congress papers - SASAS: 2006 (2) & 2009**
 - Int Conf Meat Sci: 2008
 - AAABG - Australia: 2009
- **4 Semi-scientific papers – Fleckvieh World en
Elsenburg Journal**
- **8 Popular articles - Landbouweekblad, AgriProbe,
Fleckvieh Welt, Fleckvieh World, WSFF, George
Herald**
- **6 Lectures to farmers**
- **3 Radio talks**

To improve research on crossbreeding:

- **More experimental animals – takes time**
- **Need pure bred Fleckviehs or dairy Simmentalers**
- **Should do reciprocal crossbreeding**
 - H x F and J x F
- **Possible now to buy some Simmentaler cows**
- **Could upgrade to Fleckvieh**
- **Need start-up capital - €5000**
- **Running costs for 3 years before self paid**

Conclusions:

- **Still a long way to go**
- **Some meat science studies are completed**
- **H and FxH are in second lactation**
- **Similar milk yields in first lactation**
- **J and FxJ are in first lactation**
- **Higher live weights for Fleckvieh crossbreds**
- **Higher income for Fleckvieh crossbreds**

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Thank you for your support