

LifeStart: how calf rearing contributes to building the sustainable dairy cow

Eile van der Gaast, September 2024

1 LifeStart opportunity

2 LifeStart study at Trouw R&D

3 LifeStart learnings / earnings

4 LifeStart and sustainability



What is LifeStart sets life performance

LIFESTART
SETS LIFE PERFORMANCE

2010 : LifeStart started as **a vision; feed calves better to get better cows**

2012 : LifeStart became **a research project**; to substantiate the vision

2014 : LifeStart inspired Trouw to start **a 10 year on farm study**

2018 : LifeStart research brought us **Sprayfo Delta – Energized Calf Milk**

2023 : LifeStart provided **results of the long-term farm study**

2024 : LifeStart is the **fundament for all Trouw Nutrition does in calf rearing**



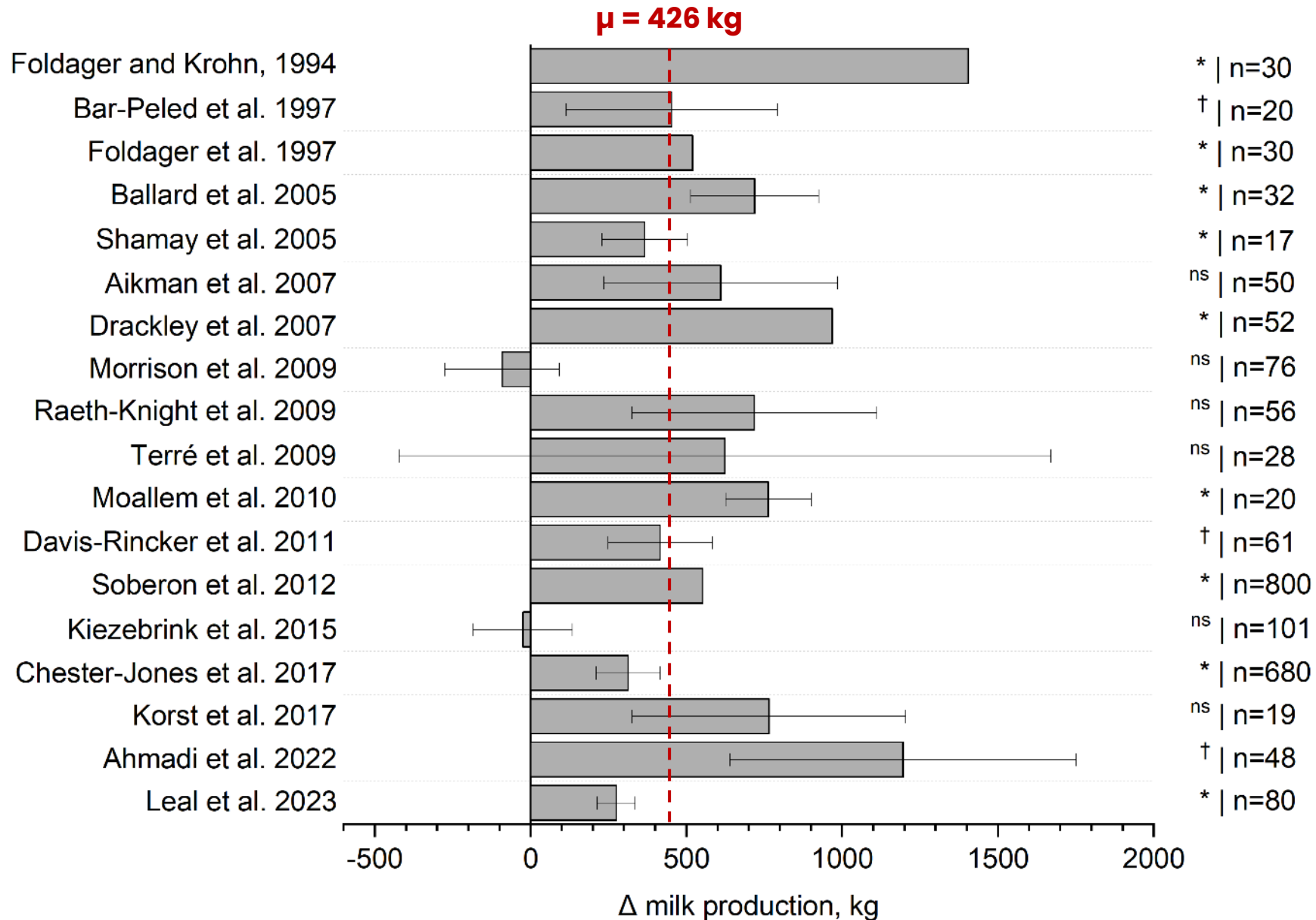
LifeStart is key for exploiting the full genetic potential

Cow-breeding is improving the calf genetics → nature

Calf rearing opens up the full potential of genetics → nurture



Studies show preweaning growth raises 1st lactation milk production



LifeStart will simply increase future milk production

- LifeStart is feeding calves like the cow: unrestricted in amount and time

Restricted pre-weaning milk diet



Lower milk production



Intensive pre-weaning milk diet



Increased milk production

- LifeStart enables calves to become more productive dairy cows

What means restoring natural standards in modern calf rearing:

- 1. Restore feeding level: feed more milk** 8–12 L a day
- 2. Restore weaning time; feed milk longer** 10–12 weeks
- 3. Restore nutrient profile: more fat than protein** 25–27% fat
- 4. Restore fatty acid profile: more short chain FA** patented fat-formula
- 5. Restore mineral balance: low ash content** low in Copper/Iron/Manganese
- 6. Restore trace mineral sources** 100% OptiMin (organic)

LifeStart study at Trouw R&D

The proof of the pudding
is in the eating



LifeStart study at Trouw R&D; the 10 year time line



Prewearinging



Heifer development



1st Lactation



2nd Lactation

3rd Lactation



LifeStart study at Trouw R&D; the equals



- 86 individually housed female calves
- blocked by colostrum, parity & season
- *All ad libitum* access from d4
water, starter feed and straw
- All weaned at 56d of age
- All group housed from 70d of age

- Same housing
- Same management protocol
- Same weaning protocol
- Mixed in groups after weaning
- Same feeding after weaning

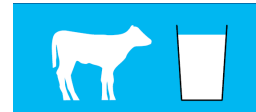
Same calf milk: Sprayfo Royal

- 50% SMP; 23% protein, 18% fat, 0% fiber, 8% ash
- Concentration 150 g/L milk, 15% DM
- Milk applied via individual teat bucket

Different feeding strategy

➤ LifeStart = 1.2 kg dry milk solids per day

- 2 x 4 L = 8 liter milk per day

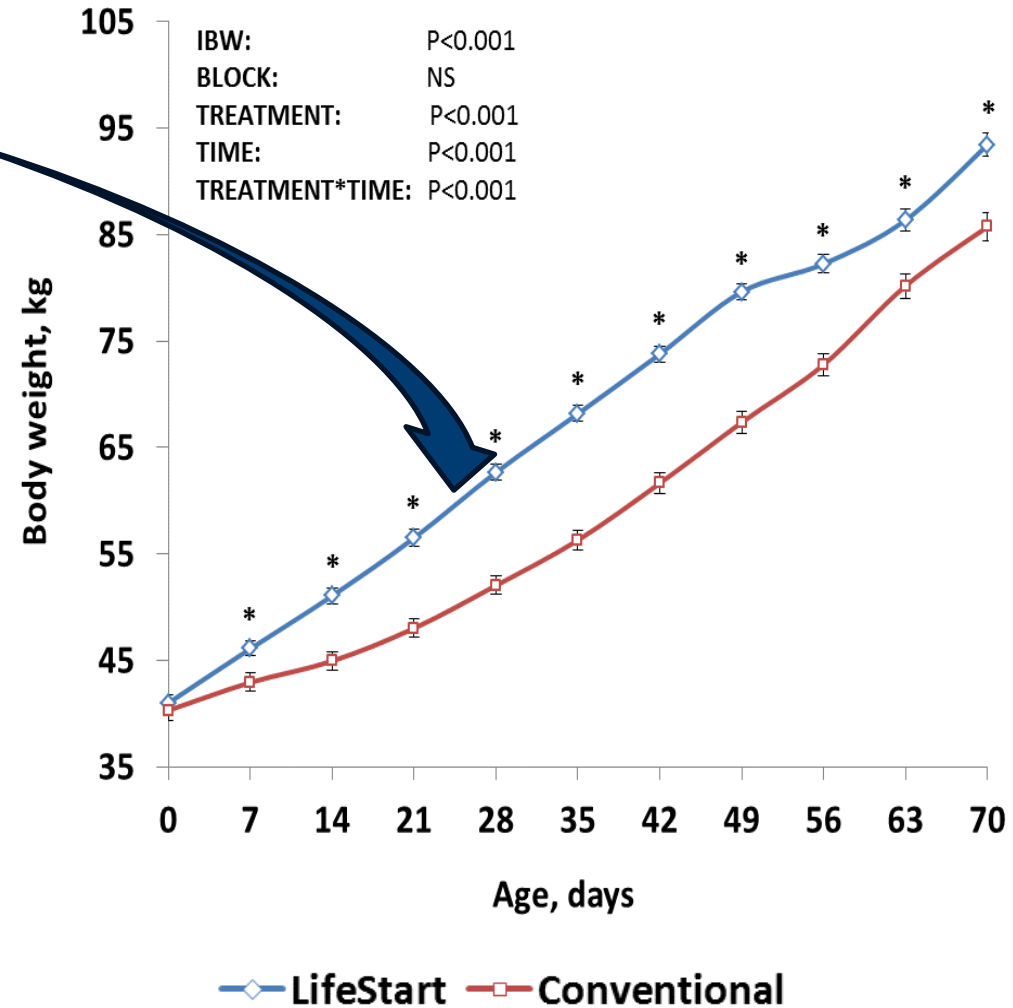
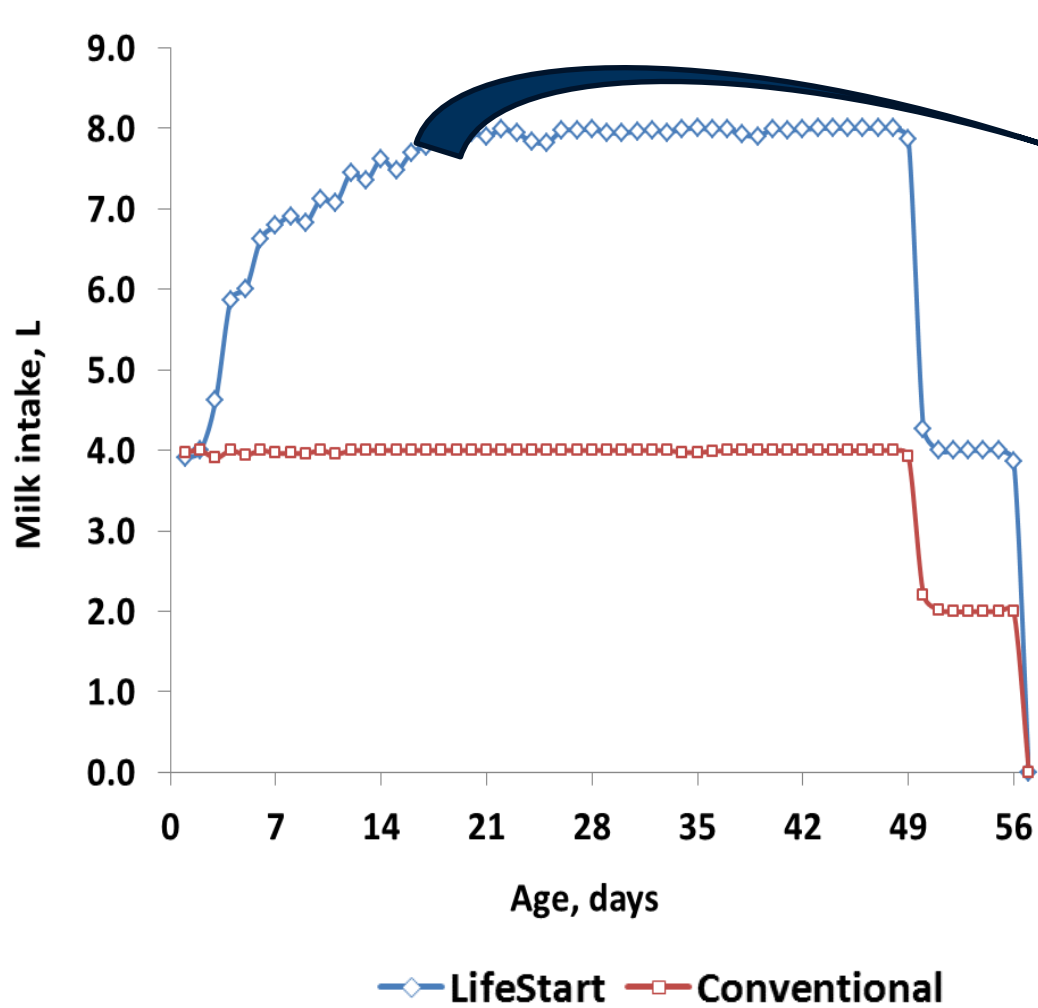


➤ Conventional = 0,6 kg dms per day

- 2 x 2 L = 4 liter milk per day



LifeStart; feed more milk = clear better growth



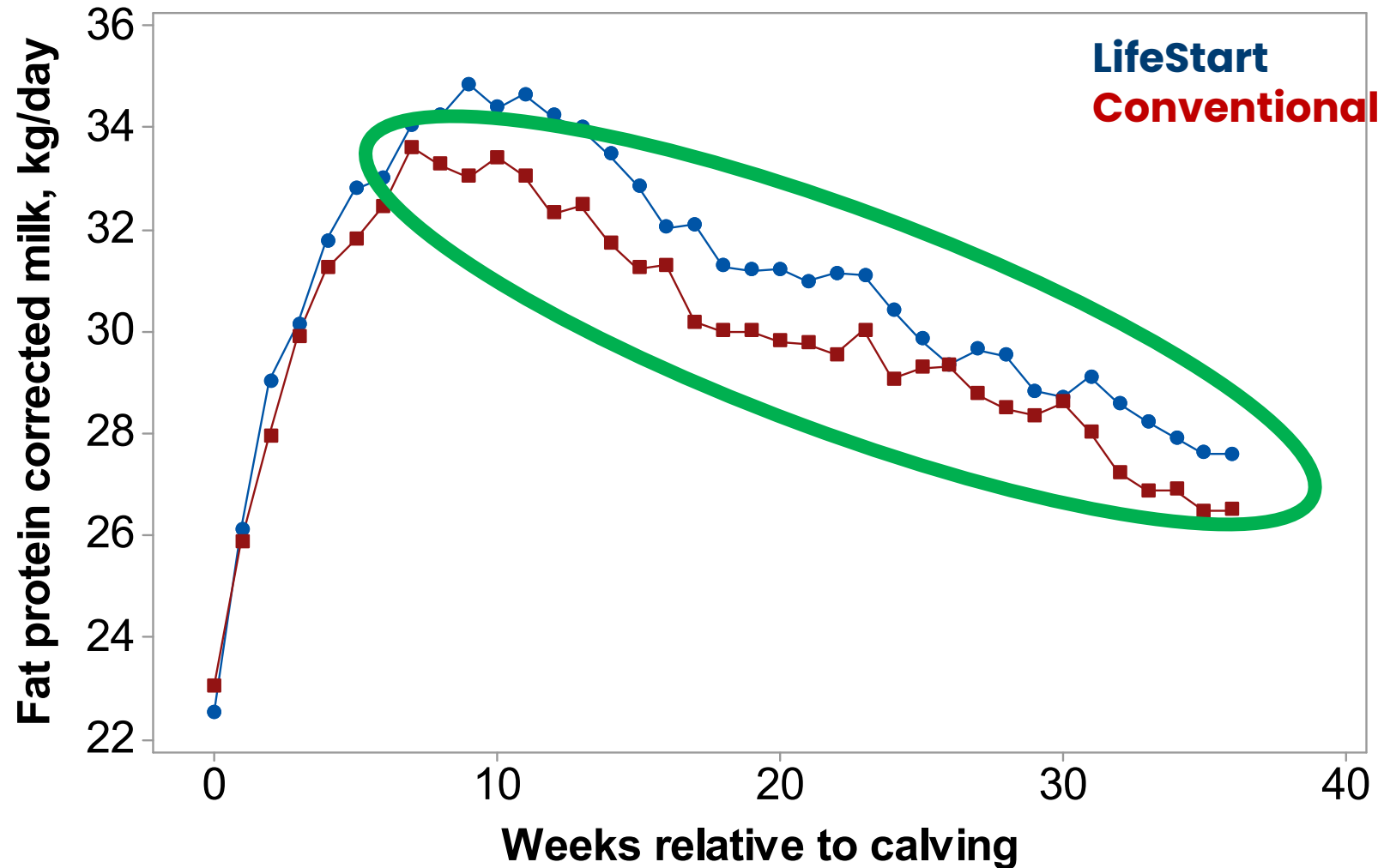
Source: Leonel Leal et al, in preparation

LifeStart; clear impact on first breeding

	Conventional	LifeStart	diff	P value
	n=39	n=41		
1^e insemination	398 days	390 days	8	0.05
Age at conception	428 days	405 days	23	0.01
Inseminations per conception	1,9	1,3	0,6	*
Age at first calving	699 days	683 days	16	0.03

Source: Leonel Leal et al, in preparation

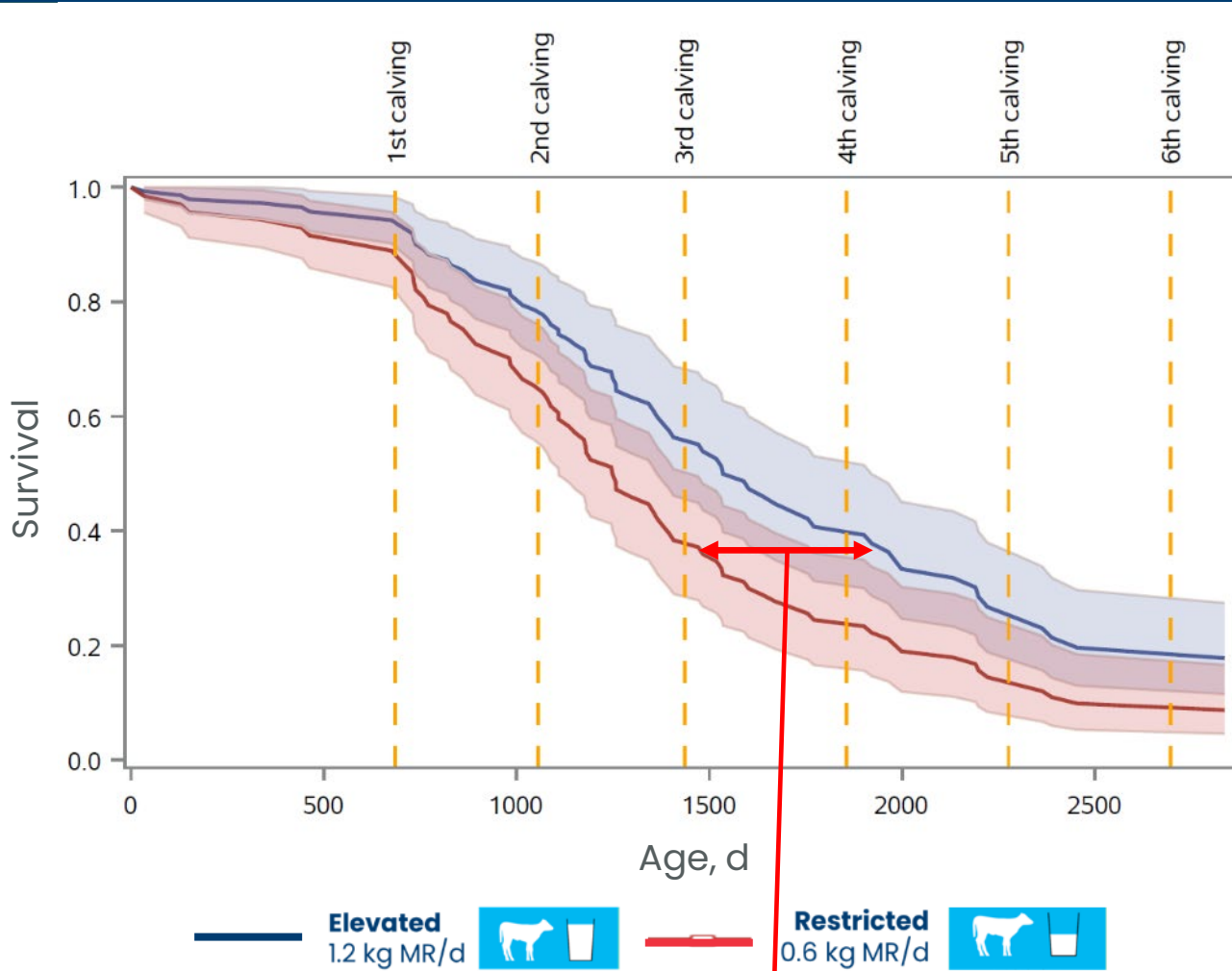
LifeStart; clear impact on milk yield (+ 1,5kg FCM)



Effect	P-value
Treat	0.0084
Time	<.0001
Treat x Time	0.3008
Block	<.0001

Source: Leonel Leal et al, in preparation

LifeStart; clear impact on longevity (+ 300 days)



> 300 days!

Item	Treatment		P-value
	LifeStart (n = 43)	Restrict (n = 43)	
Survival 1st calving % of total (n calving)	93% (40)	88% (38)	0.36
Survival 2nd calving % of total (n calving)	77% (33)	65% (28)	0.07
Survival 3rd calving % of total (n calving)	54% (23)	37% (16)	0.05
Survival 4th calving % of total (n calving)	42% (18)	23% (10)	0.02
Survival 5th calving % of total (n calving)	26% (11)	14% (6)	0.02
Survival 6th calving % of total (n calving)	21% (9)	7% (3)	0.02
Survival August 2023 % of total (n calving)	21% (9)	5% (2)	0.02

LifeStart study at Trouw R&D

learnings & earnings



LifeStart R&D study: the learnings

LifeStart; more milk for excellent calf rearing

- Intensive milk feeding changes growth and health of calves
- Weight advantage at weaning maintains up to first breeding

LifeStart; improves efficiency at first breeding

- Good calf growth facilitates first breeding at 12-13 months
- LifeStart heifers show improved fertility and survival till first calving

LifeStart; improves milk-production and longevity

- LifeStart calves as cow = produce more milk → + 1,5 L FCM/day
- LifeStart calves as cow = stay longer farm → > 300 days (~1 lactation)

LifeStart rearing unlocks the full genetic cow potential



LifeStart R&D study: the earnings

LifeStart feeding is the start of excellent calf rearing

- Investment in milk = 20 kg extra CMR → **60 Euro**

LifeStart improves heifer rearing into first calving

- Inseminations per heifer - 0,6 → **25 Euro**
- First calving age - 16 days → **32 Euro**
- Survival rate at first calving + 5 % → **50 Euro**

LifeStart improves milk-production and longevity

- Milk **+1,5kg**, Days on Farm **>300 days**: Lifetime production **+ 7.500 -8.500 kg**
- Additional income from milk production → **~500 Euro per cow per year**



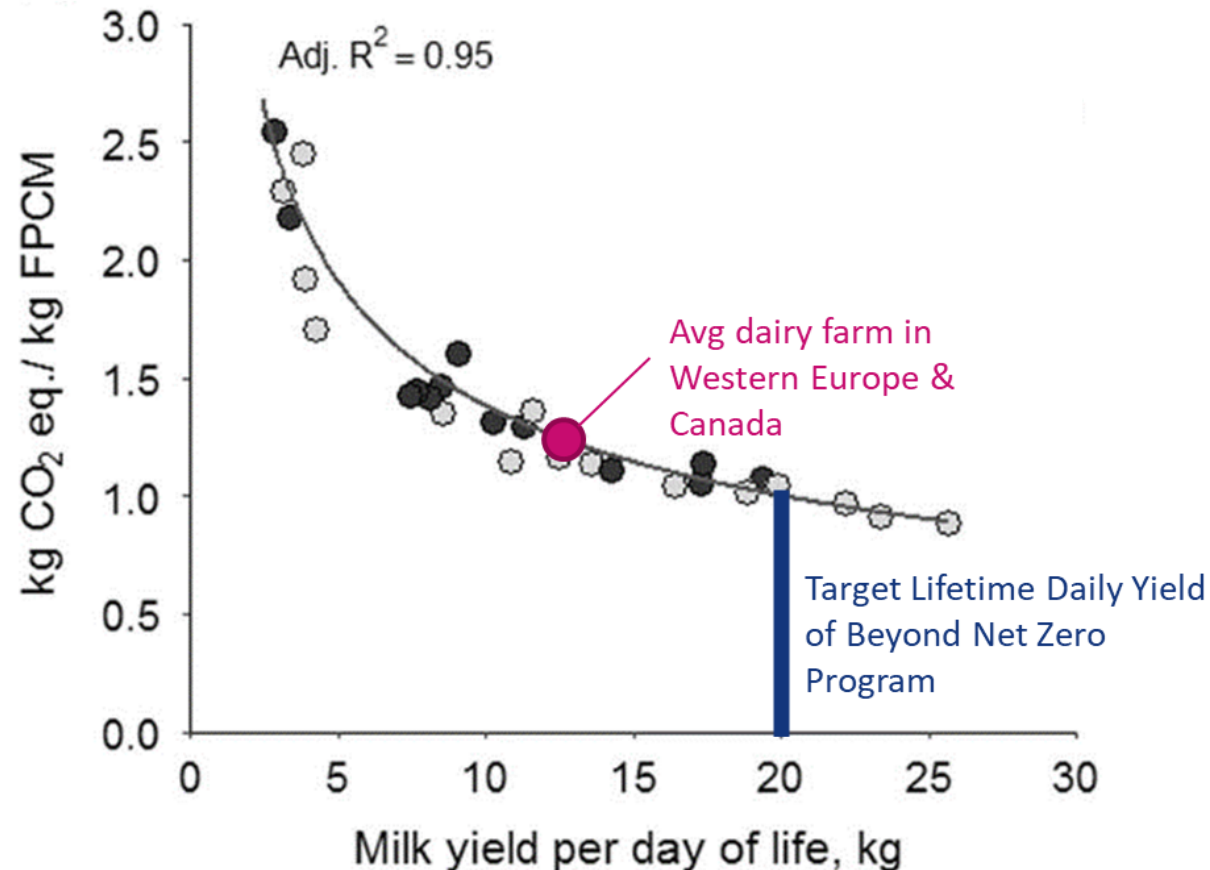
LifeStart clearly contributes to building the profitable cow

**LifeStart calf rearing
and
building the sustainable cow**



To improve sustainability, Lifetime Daily Yield needs to go up

Lifetime Daily Yield = kg EC-milk produced per day of life. From birth till culling.



Factors pushing Lifetime Daily Yield up are

- LOWER age at first calving
- HIGHER milk production per day in milk
- MORE finished lactations per cow

All contribute to a lower carbon footprint

So; farmers know what to do

Sprayfo Profit Calculator; to quantify LifeStart impact

Sustainable dairy farming will result in more profit

Define your production goals and explore the positive impact of improving key production indicators on future herd-dynamics and financial results.

CALCULATE YOUR PROFIT

Farm data

Fill in your exact farm data values

Dairy cows (nr., incl. dry cows)	100
Annual milkproduction (kg ECM)	10000
Mature bodyweight (kg after third calving)	700
Calf mortality (% in first 12 months)	5%
Total rearing cost / (per heifer at calving)	€ 2000
Farm gate milk price (per 100kg ECM)	€ 50

Impact of 2 months earlier calving; LDY +1,1 kg ECM/day



Check your future profit

Impact on farm KPI's

Current ▼		Future
25.0	Age at first calving (months)	23.0
33.3	Replacement rate	33.3
3.0	Years in production	3.0
10000	Annual milk production (kg ECM)	10334
30030	Lifetime milk production (kg ECM)	31033
16.2	Lifetime Daily Yield (kg ECM)	17.3



Impact on rearing balance

Current ▼		Future
16.2	Lifetime Daily Yield (kg ECM)	17.3
100	Dairy cows/n (incl dry cows)	100
70	Youngstock (calves and heifers)	70
170	Total nr of dairy animals	170
7.0	Youngstock / 10 dairy cows	7.0
1000000	Annual milk output (kg ECM)	1033400



Impact on financial results

Current ▼		Future
€ 69930	Cost of rearing youngstock	€ 66180
4.69	Nett rearing cost / 100 kg ECM produced	4.29
	Savings in rearing youngstock / year	3750
	Additional income from calves sold	13
	Additional income from milk / year	6680
	Additional farm income / year	€ 10443
	Additional income / 100 kg milk produced	€ 1.01



Impact of 1 extra lactation; LDY + 2,7 kg/day



Check your future profit

Impact on farm KPI's

Current ▼		▼ Future
25.0	Age at first calving (months)	25.0
33.3	Replacement rate	25.0
3.0	Years in production	4.0
10000	Annual milkproduction (kg ECM)	10498
30030	Lifetime milk production (kg ECM)	41992
16.2	Lifetime Daily Yield (kg ECM)	18.9



Impact on rearing balance

Current ▼		▼ Future
16.2	Lifetime Daily Yield (kg ECM)	18.9
100	Dairy cows/n(Incl dry cows)	107
70	Youngstock (calves and heifers)	56
170	Total nr of dairy animals	164
7.0	Youngstock / 10 dairy cows	5.3
1000000	Annual milk output (kg ECM)	1128220



Impact on financial results

Current ▼		▼ Future
€ 69930	Cost of rearing youngstock	€ 56422
4.69	Nett rearing cost / 100 kg ECM produced	3.35
	Savings in rearing youngstock / year	13508
	Additional income from calves sold	675
	Additional income from milk / year	25644
	Additional farm income / year	€ 39828
	Additional income / 100 kg milk produced	€ 3.53

Impact of 2 months calving + 1 extra lactation = LDY + 3,9 kg



Check your future profit

Impact on farm KPI's

Current ▼		▼ Future
25.0	Age at first calving (months)	23.0
33.3	Replacement rate	25.0
3.0	Years in production	4.0
10000	Annual milk production (kg ECM)	10832
30030	Lifetime milk production (kg ECM)	43328
16.2	Lifetime Daily Yield (kg ECM)	20.1



Impact on rearing balance

Current ▼		▼ Future
16.2	Lifetime Daily Yield (kg ECM)	20.1
100	Dairy cows/n(incl dry cows)	107
70	Youngstock (calves and helpers)	56
170	Total nr of dairy animals	164
7.0	Youngstock / 10 dairy cows	5.2
1000000	Annual milk output (kg ECM)	1164115



Impact on financial results

Current ▼		▼ Future
€ 69930	Cost of rearing youngstock	€ 53396
4.69	Nett rearing cost / 100 kg ECM produced	3.07
	Savings in rearing youngstock / year	16534
	Additional income from calves sold	686
	Additional income from milk / year	32823
	Additional farm income / year	€ 50043
	Additional income / 100 kg milk produced	€ 4.30



LifeStart supports building the sustainable dairy cow

Overview of LifeStart impact on LDY, sustainability and profit

	Lifetime Daily Yield	diff	kg CO2 eq / kg FPC-milk	diff	extra income / cow / year
Base scenario	16,2		1,1		€ 0
2 months earlier calving	17,3	7%	1,05	-5%	€ 104
1 extra lactation	18,9	17%	0,96	-13%	€ 398
2 months + 1 lactation	20,1	24%	0,92	-16%	€ 500
Dutch average farm	15		1,2		+/-

LifeStart Calf rearing:

1. Facilitates earlier calving
2. Increases milk production
3. Stretches longevity

As a result:

1. Increased Lifetime Daily Yield
2. Increased farmers income
3. **And improved sustainability**

LifeStart; good for the calf, the cow and the farmer

Good for the calf

- Lower calf mortality
- Earlier heifer breeding
- Improved heifer fertility

Strong vital/shiny calves



Good for the cow

- Increased milk production
- Less health interventions
- More lactations

Increased cow longevity



Good for the farmer

- Lower rearing cost
- Lower cost per kg milk
- Higher Lifetime Daily Yield

Improved farm sustainability



Thanks
for your
attention

