

Influence of extracted pectin on incidence of diarrhea in calf rearing

Field test | trial period: 02/13 – 08/13

Advantages of extracted pectin

1. Increase in viscosity

- slows down transit time if diarrhea occurs
- the calf gets more time for efficient digestion

2. Double way mucosa protection

- pectin forms a protective layer in gastrointestinal tract
- reduces irritations
- decreased adhesion of facultative pathogen bacteria in the large intestine

3. Prebiotic Effect

- fermentation in the large intestine (substrate for beneficial bacteria)
- reabsorption of water in the large intestine
- short chain fatty acids as products of the fermentation support cell proliferation
- moderate pH decrease

Trial performance

Dosage:	12 g/kg pectin in milk replacer (dry)
Concentration:	200 g milk replacer plus 1 liter water
Milk supply:	9 liters per day
Feeding:	3 x daily
Period:	4. – 14. day of life
Breed:	Deutsche Holstein (n = 66)
Parameters:	body weight, milk feed consumption und faeces quality

Evaluation of faeces quality with following score:



formed, pasty



pasty thin



creamy thin



watery thin

normal faeces

diarrhea

Results of the field test

Milk feed consumption and body weight of the calves

Parameter	age [d]	control	pectin
milk feed consumption [l]	01-14	111	108
body weight [kg]	01	41,1	41,2
	14	51,4	51,0

ANOVA, post-hoc duncantest; n = 41

Faeces quality 4. – 14. day of life

% of the days with corresponding scores during observation

Faces quality [score]	1	2	3	4	3 + 4
control	1,5	56,1	36,4	6,1	42,5 ^a
pectin	3,2	61,7	33,6	1,6	35,2 ^b

chi-square-test, P = 0,05; n = 41

a,b: significant differences between the groups

Faeces quality on 9. day of life

number of calves with corresponding scores on this day

Faces quality [score]	1	2	3	4
control	0	3	14	1
pectin	0	14	9	0

chi-square-test, P = 0,05; n = 41

Occurance of diarrhea between 4. – 14. day of life

	control	pectin
start [day of life]	8,1	8,8
duration [days]	4,9	4,0
intensity [score]	2,5 ^a	2,3 ^b

ANOVA, post-hoc duncan; n = 41

a,b: significant differences between the groups

Trial conditions

- test farm in the Nort-East of Germany (approx. 11.000 kg milk)
- premium milk replacer was used
- analysis only for calves without medical treatment

Conclusion

With pectin application:

- diarrhea incidence was significant reduced

With pectin application, if diarrhea occurred:

- diarrhea started with time delay (+ 1 day)
- the period of diarrhea was decreased (- 1day)
- intensity of diarrhea was milder

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