

1 **Effects of different dosages of propylene glycol in dry cows and cows in early lactation**

2 Michaela Maurer<sup>1\*</sup>, Walter Peinhopf<sup>2</sup>, Jutta Gottschalk<sup>3</sup>, Almut Einspanier<sup>3</sup>, Gabor Koeller<sup>^</sup>  
3 and Thomas Wittek<sup>1</sup>

4

5 <sup>1</sup>Clinic for Ruminants, University of Veterinary Medicine Vienna, Austria

6 <sup>2</sup>Dr. VET – Veterinarians, Lebring, Austria

7 <sup>3</sup>Institute of Physiological Chemistry, Faculty of Veterinary Medicine Leipzig, Germany

8 <sup>^</sup>Clinic of Large Animal Veterinary Internal Medicine, Faculty of Veterinary Medicine  
9 Leipzig, Germany

10

11 **Short title:** Propylene glycol in dry cows

12

13

14 \*Correspondence:

15 Michaela Maurer

16 Clinic for Ruminants, University of Veterinary Medicine

17 Veterinaerplatz 1, A-1210 Wien, Austria

18 mailing address: Sankt Josef 77, A-8503 Sankt Josef

19 phone number: 0043/664/4154111

20 e-mail address: michi\_maurer@hotmail.com

21

22 **Supplementary File**

23

24

25

26

27 Supplements Table 1. Serum concentrations (AM±SD) at different time (in h) after oral  
28 application of 100 ml propylene glycol in 7 cows during dry period (D), close up period (C),  
29 fresh cow period (F) and lactation (L). (AM = arithmetic mean; SD = standard deviation;  
30 Units: BHB: mmol/l, Bilirubin (Bil): μmol/l, Cholesterol (Chol): mmol/l, AST: U/l, GLDH:  
31 U/l and K: mmol/l).

32

33

34

35

36

37

38

39

40

41

42

43

44

45

46

47

48

49

50

51

52

Parameter	Dry		Close up		Fresh		Lactating	
	AM	SD	AM	SD	AM	SD	AM	SD
Rquicki0	0.82	0.20	0.75	0.12	0.84	0.25	1.07	0.39
BHB0	0.51	0.12	0.53	0.16	0.61	0.22	0.69	0.23
BHB2	0.67	0.12	0.56	0.17	0.54	0.15	0.76	0.28
BHB4	0.60	0.06	0.53	0.12	0.56	0.23	0.65	0.23
BHB6	0.64	0.10	0.50	0.12	0.60	0.19	0.85	0.32
BHB12	0.79	0.11	0.57	0.27	0.69	0.20	0.84	0.29
Bil0	1.24	0.47	1.73	0.78	5.17	3.02	1.57	0.76
Bil2	1.09	0.44	1.28	0.76	4.33	2.68	1.34	0.46
Bil4	1.24	0.46	1.27	0.79	4.60	2.97	1.50	0.55
Bil6	1.17	0.37	1.47	0.87	4.84	3.27	1.49	0.50
Bil12	1.27	0.45	1.12	0.64	3.76	1.11	1.43	0.72
Chol0	3.52	0.53	2.35	0.41	1.84	0.21	4.22	0.47
Chol2	3.49	0.52	2.31	0.35	1.77	0.22	4.25	0.51
Chol4	3.54	0.64	2.29	0.41	1.78	0.22	4.28	0.47
Chol6	3.44	0.54	2.27	0.38	1.81	0.25	4.31	0.53
Chol12	3.30	0.55	2.24	0.34	1.79	0.25	4.25	0.51
AST0	85.49	21.71	85.82	15.27	121.46	46.55	75.61	12.52
AST2	84.39	18.94	84.48	19.12	117.86	50.55	77.03	12.10
AST4	87.39	20.40	84.00	20.98	119.03	50.55	77.16	11.63
AST6	85.30	21.01	83.50	20.09	122.17	52.91	77.61	12.62
AST12	87.59	24.59	85.33	19.76	118.64	43.39	76.67	13.30
GLDH0	11.77	8.22	15.18	17.59	9.60	6.84	9.76	3.63
GLDH2	11.44	7.92	15.20	18.02	9.23	6.60	9.94	3.67
GLDH4	12.07	8.66	15.20	18.61	9.49	7.03	10.03	3.83
GLDH6	11.86	8.48	15.33	18.61	10.20	8.22	10.54	4.62
GLDH12	12.46	8.87	15.82	17.32	10.29	8.26	11.10	5.99
K0	3.97	0.46	4.03	0.22	3.93	0.32	4.02	0.16
K0.5	3.75	0.27	3.84	0.50	3.61	0.35	3.73	0.32
K1	3.63	0.20	3.95	0.28	3.77	0.32	3.76	0.39
K1.5	3.69	0.23	3.73	0.27	3.70	0.19	3.86	0.41
K2	3.73	0.23	3.88	0.18	3.74	0.21	3.97	0.43
K2.5	3.78	0.18	3.70	0.21	3.85	0.27	3.77	0.23
K3	3.87	0.20	3.93	0.30	3.90	0.32	3.78	0.35
K3.5	3.81	0.33	3.86	0.26	4.04	0.24	3.95	0.36
K4	3.80	0.29	3.95	0.31	4.00	0.30	3.87	0.28
K6	3.89	0.27	3.95	0.24	3.96	0.31	4.01	0.31
K12	3.92	0.31	3.74	0.44	3.73	0.35	3.73	0.30

53

54

55

56

57 Supplements Table 2. Serum concentrations (AM±SD) at different time (in h) after oral  
58 application of 300 ml propylene glycol in 7 cows during dry period (D), close up period (C),  
59 fresh cow period (F) and lactation (L). (AM = arithmetic mean; SD = standard deviation;  
60 Units: BHB: mmol/l, Bilirubin (Bil): μmol/l, Cholesterol (Chol): mmol/l, AST: U/l, GLDH:  
61 U/l and K: mmol/l).

62

63

64

65

66

67

68

69

70

71

72

73

74

75

76

77

78

79

80

81

82

Parameter	Dry		Close up		Fresh		Lactating	
	AM	SD	AM	SD	AM	SD	AM	SD
Rquick0	0.84	0.22	0.74	0.16	0.97	0.44	0.83	0.14
BHB0	0.51	0.10	0.49	0.15	0.79	0.29	1.00	0.41
BHB2	0.52	0.16	0.40	0.16	0.54	0.16	0.71	0.24
BHB4	0.62	0.17	0.50	0.09	0.52	0.10	0.69	0.17
BHB6	0.56	0.09	0.43	0.15	0.55	0.17	0.67	0.23
BHB12	0.72	0.20	0.60	0.31	0.72	0.25	0.86	0.24
Bil0	1.37	0.57	1.28	0.52	3.81	1.55	1.93	0.91
Bil2	1.17	0.36	1.02	0.31	2.34	0.70	1.33	0.59
Bil4	1.26	0.41	0.75	0.20	2.26	0.82	1.33	0.61
Bil6	1.34	0.40	0.80	0.17	2.61	1.18	1.31	0.65
Bil12	1.11	0.28	0.92	0.30	2.31	0.94	1.49	0.83
Chol0	3.53	0.63	2.36	0.47	1.95	0.23	4.25	0.45
Chol2	3.46	0.56	2.31	0.43	1.98	0.30	4.39	0.58
Chol4	3.50	0.55	2.26	0.54	1.92	0.30	4.43	0.58
Chol6	3.52	0.60	2.17	0.56	1.95	0.26	4.35	0.54
Chol12	3.42	0.60	2.21	0.53	1.97	0.27	4.47	0.53
AST0	85.30	17.70	82.33	20.63	132.30	64.70	76.59	12.23
AST2	84.99	18.19	83.18	21.84	130.86	62.88	77.26	13.16
AST4	85.84	17.01	78.93	19.76	124.36	55.88	78.49	14.00
AST6	85.71	15.60	76.35	22.74	131.83	69.08	77.13	13.04
AST12	85.30	17.16	80.25	22.93	128.99	58.24	78.70	12.06
GLDH0	11.67	6.58	23.42	36.23	10.81	7.69	11.77	6.98
GLDH2	11.49	7.34	22.45	34.15	11.06	8.10	11.87	7.26
GLDH4	11.54	7.28	22.72	36.10	10.69	8.03	12.20	7.94
GLDH6	11.33	6.80	20.02	30.24	10.79	7.34	11.89	7.72
GLDH12	10.84	6.26	21.70	33.27	10.30	6.51	12.10	7.26
K0	3.97	0.23	4.10	0.41	3.85	0.32	3.85	0.42
K0.5	3.58	0.48	3.69	0.26	3.66	0.36	3.72	0.32
K1	3.61	0.38	3.59	0.22	3.93	0.18	3.94	0.21
K1.5	3.50	0.57	3.80	0.23	3.92	0.29	3.87	0.19
K2	3.52	0.20	3.82	0.28	4.04	0.31	4.03	0.28
K2.5	3.92	0.35	3.92	0.20	3.98	0.26	3.77	0.31
K3	3.81	0.29	3.84	0.23	4.17	0.11	3.82	0.23
K3.5	3.97	0.41	3.96	0.18	4.02	0.29	3.78	0.16
K4	3.90	0.15	3.92	0.42	4.10	0.31	3.82	0.19
K6	4.02	0.44	3.97	0.24	3.98	0.20	4.05	0.39
K12	4.17	0.32	3.87	0.22	3.85	0.31	4.04	0.55

83

84

85

86

87 Supplements Table 3. Serum concentrations (AM±SD) at different time (in h) after oral  
88 application of 500 ml propylene glycol in 7 cows during dry period (D), close up period (C),  
89 fresh cow period (F) and lactation (L). (AM = arithmetic mean; SD = standard deviation;  
90 Units: BHB: mmol/l, Bilirubin (Bil): μmol/l, Cholesterol (Chol): mmol/l, AST: U/l, GLDH:  
91 U/l and K: mmol/l).

92

93

94

95

96

97

98

99

100

101

102

103

104

105

106

107

108

109

110

111

112

Parameter	Dry		Close up		Fresh		Lactating	
	AM	SD	AM	SD	AM	SD	AM	SD
Rquicki0	0.79	0.06	0.84	0.12	1.12	0.81	0.84	0.32
BHB0	0.52	0.10	0.49	0.12	0.70	0.27	0.92	0.29
BHB2	0.53	0.10	0.42	0.15	0.51	0.12	0.55	0.13
BHB4	0.60	0.06	0.47	0.12	0.50	0.15	0.51	0.11
BHB6	0.49	0.08	0.46	0.13	0.53	0.14	0.67	0.19
BHB12	0.68	0.11	0.53	0.18	0.66	0.20	0.69	0.18
Bil0	1.30	0.42	1.03	0.31	4.26	1.24	2.09	0.85
Bil2	1.19	0.34	1.32	0.56	2.19	0.68	1.59	0.70
Bil4	1.17	0.47	0.90	0.25	2.47	0.83	1.20	0.61
Bil6	1.17	0.38	0.90	0.39	2.37	0.63	1.49	0.61
Bil12	1.30	0.52	0.90	0.35	2.40	0.73	1.29	0.72
Chol0	3.46	0.53	2.31	0.35	1.99	0.23	4.30	0.52
Chol2	3.53	0.55	2.36	0.46	1.98	0.24	4.47	0.50
Chol4	3.41	0.59	2.36	0.42	1.99	0.25	4.27	0.58
Chol6	3.50	0.52	2.32	0.43	1.94	0.21	4.17	0.47
Chol12	3.47	0.51	2.23	0.35	1.93	0.19	4.32	0.49
AST0	83.79	16.95	82.50	18.62	123.16	41.58	74.99	12.26
AST2	84.27	14.78	85.48	20.73	121.50	44.13	76.19	11.40
AST4	81.50	15.47	82.83	17.59	120.14	39.24	73.50	15.27
AST6	85.10	17.16	81.85	18.08	118.86	42.29	72.73	13.04
AST12	85.04	17.05	82.82	19.59	119.33	39.63	76.86	15.70
GLDH0	10.76	6.60	17.83	24.70	10.56	5.66	10.36	3.36
GLDH2	10.60	5.82	18.63	25.39	10.47	6.03	10.29	3.58
GLDH4	10.40	5.90	17.38	23.02	10.37	5.99	9.86	3.03
GLDH6	11.03	6.97	16.48	20.99	10.27	5.43	9.54	3.08
GLDH12	10.87	7.11	15.82	19.92	10.10	5.31	10.36	4.04
K0	4.06	0.27	3.96	0.14	3.96	0.23	3.90	0.39
K0.5	3.44	0.14	3.77	0.28	3.56	0.40	3.69	0.18
K1	3.50	0.33	3.63	0.30	3.79	0.33	3.81	0.26
K1.5	3.56	0.21	3.37	0.36	3.73	0.13	3.65	0.49
K2	3.56	0.18	3.51	0.14	3.86	0.26	3.81	0.31
K2.5	3.60	0.19	3.64	0.31	4.12	0.31	3.77	0.28
K3	3.52	0.33	3.75	0.31	4.11	0.26	3.71	0.41
K3.5	3.90	0.44	3.86	0.25	3.98	0.13	3.86	0.32
K4	3.79	0.28	3.88	0.45	4.20	0.50	3.91	0.24
K6	3.93	0.20	3.89	0.22	3.74	0.39	3.79	0.28
K12	4.01	0.33	3.77	0.16	3.85	0.21	3.73	0.44

113

114