

Risk of salmonella infection in different production systems

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Conclusion: The risk of salmonella infection in specialized beef herds buying more than 150 calves annually was 14 times higher compared to dairy herds, 128 times larger than fattening herds buying less than 150 calves annually and 305 times larger than for beef cow herds.

Introduction: In the national Swedish salmonella control program all infected herds are put under restrictions and salmonella is eliminated from the herd. Levels of reimbursement are related to the estimated risk infection. Therefore more knowledge is needed about risk factors for herds becoming infected with salmonella.

Aim: To quantify the risk of salmonella infection in different cattle production systems.

Metod: The population at risk was Swedish cattle herds during 1993-2004. The population was divided i five groups: 1) specialized beef herds (SBH) buying >150 calves from > 5 herds, 2) SBH buying >150 calves from <6 herds 3) SBH buying < 150 calves annually 4) dairy herds and 5) beef cow herds. The salmonella incidence was calculated by dividing the number of notified infected herds with the number of cattle herds at risk multiplied by 1000. Incidence rate ratios (IR) were calculated by dividing the incidence in group 1 with the incidence in the other groups. A 5-95% credibility interval was simulated in @RISK.

Number of infected herds, cattle herd years, incidence rate per 1000 cattle year herds and incidence rate ratio for herds for group 1 compared to groups 3, 4 and 5. Years 1993 to 2004.

	Production types				
	1	2	3	4	5
Infected herds	12	0	8	105	5
Cattle herd years	1545	192	122396	172142	182060
Incidence rate	7,8	0	0,065	0,61	0,027
IR ^a (5-95% CI)	1	nc	128 (57-240)	14 (8,0-21)	305 (119-634)

a) Incidence rate in group 1 divided by incidence rate in groups 3-5.

Results: The number of salmonella infected herds per 1000 cattle-herd-years varied between 0 and 7.8. The risk of cattle herds in group 1 of becoming infected was 14 – 305 times higher than herds belonging to groups 3-5 (Table). The most common serotype in group 1, 3 and 4 was *Salmonella* (S) Dublin causing 67%(8), 100%(8) and 71%(75) of all infections. However, in group 5, none of the herds were infected with S. Dublin.

Discussion: As expected, the risk of becoming infected with salmonella was greatest in specialized beef herds annually buying >150 calves from > 5 herds and smallest in beef cow herds. This reflects the importance of live animal movement as a source for salmonella. This was also supported by the fact that the cattle adapted serotype S. Dublin, was the most common serotype in group 1, 3 and 4. The difference in serotype distribution might also reflect a difference in epidemiologi in extensively managed herds (group 5) compared to more intensively managed herds (group 1-4).



Foto: Bengt Ekberg, SVA

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