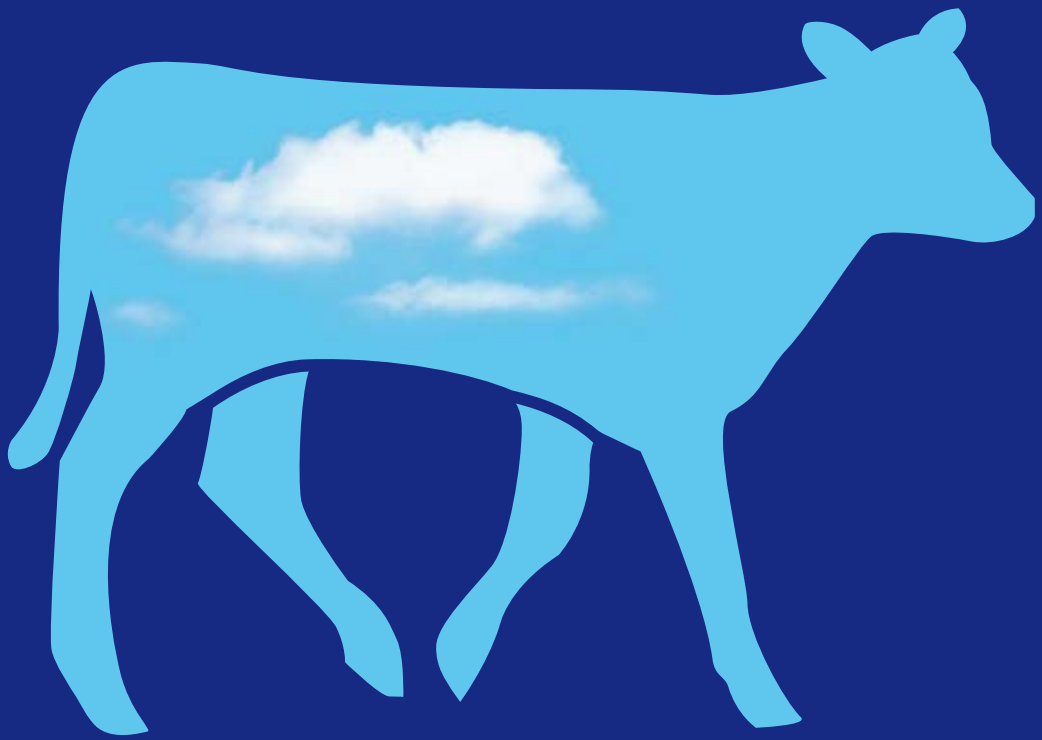
Technical Bulletin

Identification of risk factors for Bovine Respiratory Disease on Dutch dairy farms



EVERY BREATH COUNTS

MSD Animal Health

Identification of risk factors for Bovine Respiratory Disease on Dutch dairy farms[1]

Objectives

Due to the complexity of Bovine Respiratory Disease (BRD), investigations on each individual BRD outbreak require a structured approach. Only tailor-made recommendations addressing the risk factors can lead to an improvement of the health status of calves. Expertis™ Rescalf is a digital program which offers veterinarians a structured approach to investigations of BRD problems and to develop a tailored advice. This approach combines anamnesis, farm audits and laboratory examinations. The Rescalf program was applied on 51 BRD outbreaks on dairy farms during one year. The data were analyzed to specify the contribution of the different respiratory pathogens as well as other risk factors to BRD problems. Moreover, it was evaluated whether the Rescalf approach lead to substantial improvement.

Material and Methods

During the period of June 2012 till June 2013, 51 different dairy farms with BRD problems were investigated in the Expertis™ Rescalf program. For each case a diagnostic plan was set-up based upon the anamnesis. Serological examinations were done by cross sectional investigations and/or by paired blood samples. *Mannheimia haemolytica* and BRSV antibody levels were measured with an 'in house' ELISA test. *Mycoplasma bovis* antibody levels were measured with an ELISA-MB test of Bio X. BHV1 gE antibodies were screened with ELISA-BHV-1 gE test of IDEXX. BVDV antibodies were screened with P80 blocking ELISA (Prionics) by Dutch Animal Health Service, Deventer. Seroconversions in paired blood samples and/or increasing titers in older animals in cross sectional investigations were considered as evidence for infection.[2] Post-mortem examinations were performed by pathologists of Dutch Animal Health Service.

To identify other risk factors a standard audit form had to be filled in by the veterinarian. Based on the laboratory and audit findings farm-specific recommendations were given to the veterinarian.

To evaluate the results approximately 6 months after closing a case each veterinarian was interviewed whether the recommendations lead to substantial improvement, slight improvement, or no improvement of the BRD situation.

Results

51 cases were reported. BRD problems were mainly seen in calves until 6 month of age. In 67% of the farms *Mannheimia haemolytica* infections were diagnosed, in 18% BRSV infections, in 14% *Mycoplasma bovis* infections and in 4% BHV1 infections BVDV circulation was detected in 18% of the farms (Diagram). In 31% of the farms combinations of respiratory pathogens were found. Compared to BRSV *Mannheimia haemolytica* infections were diagnosed more frequent and in younger calves. BRSV infections were rarely diagnosed in calves younger than 3 months (Fig 1, Fig 2).

Figure 1 *Mannheimia haemolytica* antibody titers dairy calves by age

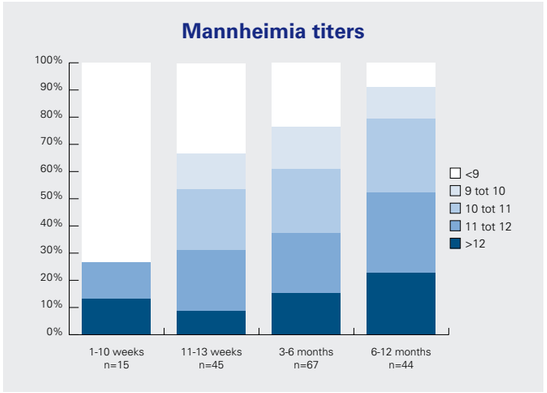
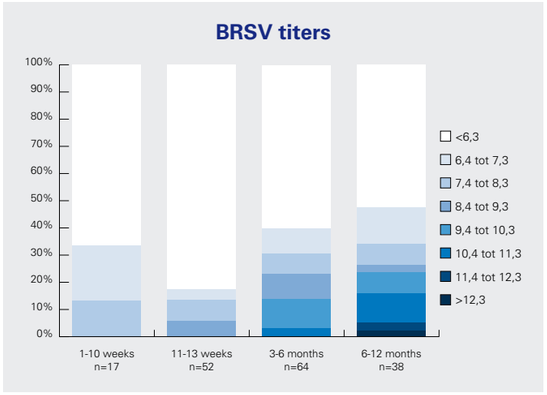
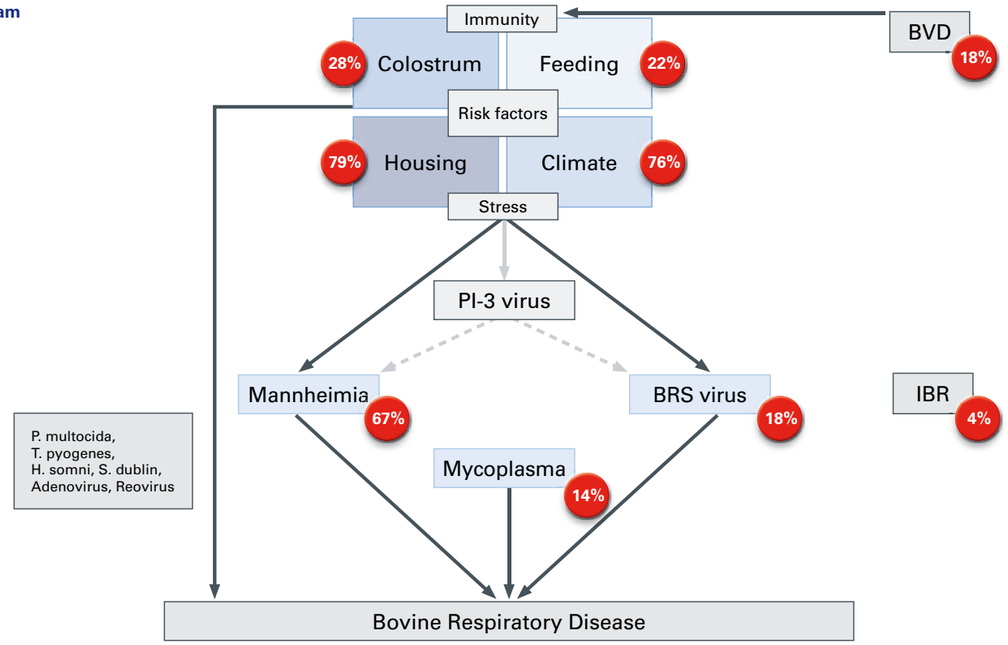


Figure 2 BRSV antibody titers dairy calves by age



Diagram



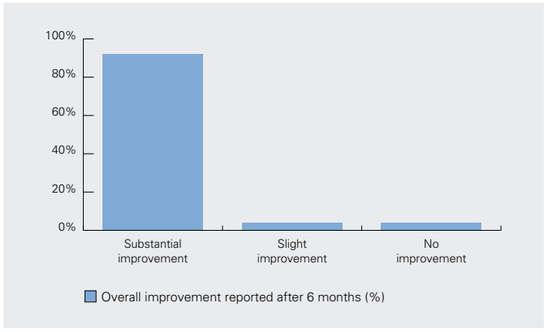
On 55% of the participating farms vaccinations against *M. haemolytica* and/or BRSV were performed. About 75% of the *Mannheimia* and BRSV infections occurred in unvaccinated herds. In vaccinated herds outbreaks of those pathogens were mainly seen if inappropriate vaccination schedules were applied or in combination with BVDV circulation.

Climate and housing were not appropriate on 76% resp. 79% of the farms. On at least 28% of the farms colostrum management was not sufficient. Food management was identified as a risk factor on at least 22% of the farms (Diagram).

In 92% of the cases substantial improvement was reported 6 months after implementation of the recommendations, in 4% of the cases slight improvement (Fig 3).

In a similar study in veal calves *M. haemolytica* infections were diagnosed at a younger age than in dairy calves.[3] In veal calves the incidence of BRSV infections especially at calf level was low.

Figure 3 Improvement achieved by structural approach of BRD problems (n= 51 dairy farms)



Conclusions

1 Following a structured approach of BRD problems leads to substantial improvement in the vast majority of farms.
2 *Mannheimia haemolytica* infections are diagnosed in two-third of the farms, mostly independent of BRSV infections. Vaccination of calves from an age of 2 weeks against *Mannheimia haemolytica* is indicated on a lot of Dutch dairy farms. BRSV infections are rarely diagnosed in calves younger than 3 months. Despite voluntary eradication programs BVDV is still circulating on Dutch dairy farms.
3 To prevent BRD problems proper vaccination schedules should be accompanied by improvements on management. Main risk factors are housing and climate. Also colostrum and feed management should be taken into account.

References:
1. Kuijk HA, Nijhoving GH, Swam H, Makoschey B. Identification of risk factors for bovine respiratoy disease on Dutch dairy farms. 28th World Buiatrics Congress, Cairns, Australia, 2014.
2. Nijhoving G.H., Kuijk H.A., Makoschey B. Pilot study: Serological investigation on the role of Bovine Respiratory Syncytial Virus and Mannheimia haemolytica in the aetiology of Bovine Respiratory Disease in youngstock on Dutch dairy farms. European Buiatrics Forum, Marseille, France, 2011.
3. Nijhoving GH, Kuijk HA, Swam H, Makoschey B. Prevalence of Bovine Respiratory Disease pathogens in veal calves in the Netherlands. 28th World Buiatrics Congress, Cairns, Australia, 2014.

BOVILIS
a world of protection

BOVILIS BOVIPAST

VACCIN TEGEN LUCHTWEGPROBLEMEN

- Unieke combinatie voor een brede bescherming
  - BRSV
  - PI-3 virus
  - *Mannheimia haemolytica*
- Vroege bescherming (vaccinatie vanaf 2 weken)
- Veilig en effectief
- Gelijktijdige toediening met Bovilis IBR marker live geregistreerd
- Beschikbaar in 10 doses en 12 x 10 doses presentaties

MSD Animal Health
uw partner voor longgezondheid

Bovilis Bovipast - Resflor - ResCalf

Bovilis® Bovipast, bevat per dosis (5 ml) geïnactiveerd PI-3 virus, stam SF-4 Reisinger: HA titer ≥ referentieserum, geïnactiveerd BRS virus, stam EV 908: VN titer ≥ referentieserum, geïnactiveerd *M. haemolytica* type A1, stam M4/1: 9 x 10^9 bacteriën. **Doeldier**: Rund. **Indicaties**: Vaccin tegen BRS virus, PI-3 virus en *M. haemolytica* serotype A1 en A6. **Bijwerkingen**: Na vaccinatie kan een tijdelijke, lokale vaccinatiereactie voorkomen. Een tijdelijke verhoging van de lichaamstemperatuur gedurende ten hoogste drie dagen kan voorkomen. Een gelijktijdige onwilligheid om te bewegen kan voorkomen vanwege een stijve nek bij de injectieplaats. Af en toe kunnen overgevoeligheidsreacties voorkomen. **Toediening en dosering**: Eén dosis van 5 ml via subcutane injectie ter hoogte van de zijkant van de hals. **Wachttijd**: 0 dagen. **Waarschuwing**: Maternale antistoffen kunnen het resultaat van de vaccinatie ongunstig beïnvloeden. REG NL 9260 UDD. Voor overige informatie, zie bijsluiter.

Blijf op de hoogte en kijk op **www.rundvee-msd-animal-health.nl**
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MSD Animal Health
Postbus 50, 5830 AB Boxmeer
www.rundvee-msd-animal-health.nl

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