
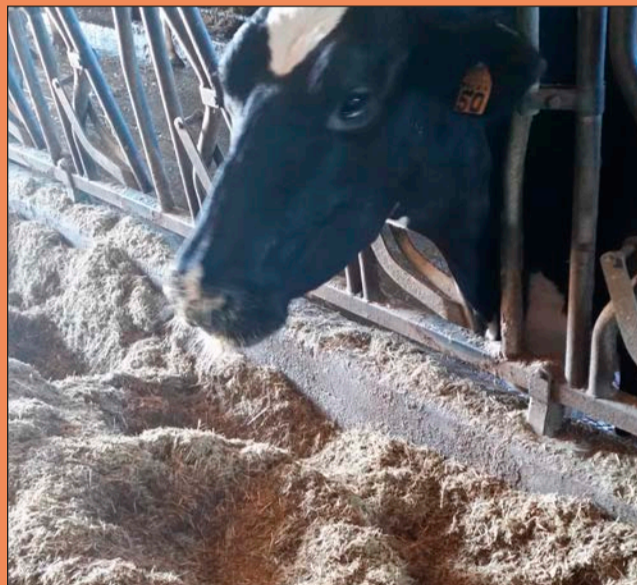

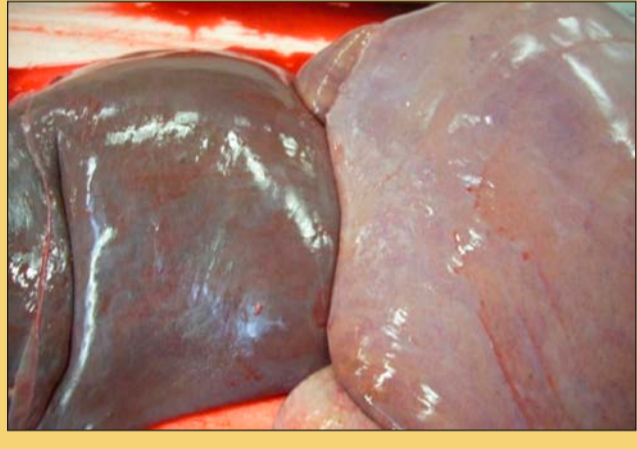



# DIFFERENTIAL DIAGNOSIS FOR RUMINANT MYCOTOXICOSIS


<b>Reproductive Failure</b> 	Potential cause	Description of problem	Check list	Corrective actions	
	<b>MYCOTOXINS:</b>	Zearalenone, ergot alkaloids, A and B-trichothecenes		<input type="checkbox"/> Analyze raw materials for mycotoxins	<input type="checkbox"/> Use raw material of high quality; Include Mycofix® according to contamination rate
	<b>NUTRITION:</b>	Nutritional imbalances		<input type="checkbox"/> Check diet formulation, ensure quality control and analysis of forages and other raw materials. Control feed intake	<input type="checkbox"/> Adapt diet formulation according to requirement, check feed intake (fresh cows)
	<b>MANAGEMENT:</b>	Stress: social, heat Insemination procedures & semen management Calving management Barn management (floor conditions, bedding situation, ...)		<input type="checkbox"/> Observe cows <input type="checkbox"/> Assess semen quality and insemination process <input type="checkbox"/> Check for difficult calving & infectious diseases <input type="checkbox"/> Check management, barns, hoof health, lying times	<input type="checkbox"/> Reduce source of stress <input type="checkbox"/> Ensure correct insemination procedures and timing <input type="checkbox"/> Ensure clean calving pen and correct calving management <input type="checkbox"/> Control of maintenance and bedding quality
	<b>DISEASES/OTHERS:</b>	Several potential diseases including BVD, Brucellosis and Leptospirosis		<input type="checkbox"/> Veterinary diagnosis	<input type="checkbox"/> Appropriate preventative and therapy measures


<b>Low Milk Production</b> 	Potential cause	Description of problem	Check list	Corrective actions	
	<b>MYCOTOXINS:</b>	Type A and B- trichothecenes, zearalenone, ergot alkaloids, patulin, roquefortine C, mycophenolic acid and others		<input type="checkbox"/> Analyze raw materials for mycotoxins	<input type="checkbox"/> Use raw material and forages of high quality; Good silage procedure and silage face management; Include Mycofix® according to contamination rate
	<b>NUTRITION:</b>	Nutritional imbalances Feed bunker management		<input type="checkbox"/> Check diet formulation and mixing	<input type="checkbox"/> Check diet formulation, ensure quality control and analysis of forages and other raw materials <input type="checkbox"/> Ensure high mixing quality of TMR and TMR to be fresh and always available; ensure good access to feed corridor
	<b>MANAGEMENT:</b>	Overcrowding Water supply Cows resting time		<input type="checkbox"/> Check flow rate and availability of drinking possibilities; <input type="checkbox"/> Check water quality <input type="checkbox"/> Check resting times	<input type="checkbox"/> Avoid overcrowding <input type="checkbox"/> Ensure high quality water supply and access to enough drinkers <input type="checkbox"/> Control of maintenance of installations and bedding quality
	<b>DISEASES/OTHERS:</b>	BVD, IBR,...		<input type="checkbox"/> Check milk production, reproduction, feed intake, behavioral changes	<input type="checkbox"/> Work closely with farm veterinarian <input type="checkbox"/> Adequate vaccine program

<b>Increased somatic cell count</b> 	Potential cause	Description of problem	Check list	Corrective actions	
	<b>MYCOTOXINS:</b>	Type-A and Type-B trichothecenes		<input type="checkbox"/> Analyze raw materials for mycotoxins	<input type="checkbox"/> Use raw material and forages of high quality; Include Mycofix® according to contamination rate
	<b>MANAGEMENT:</b>	Milking parlor settings Contagious mastitis Environmental mastitis		<input type="checkbox"/> Check for adequate milking parlor settings <input type="checkbox"/> California Mastitis Test	<input type="checkbox"/> Ensure appropriate milking parlor control and maintenance <input type="checkbox"/> Ensure adequate milking routine and milking machinery cleaning, dry-cow therapy <input type="checkbox"/> Ensure adequate barn hygiene; Pre-dipping
	<b>DISEASES/OTHERS:</b>	Acute or subacute bacterial mastitis (eg. <i>E. coli</i> )		<input type="checkbox"/> California Mastitis Test; Antibiogram of infected teat quarter	<input type="checkbox"/> Treat udder according to diagnosis

<b>Fatty liver</b> 	Potential cause	Description of problem	Check list	Corrective actions	
	<b>MYCOTOXINS:</b>	Any mycotoxins in chronic contamination but particularly Aflatoxins		<input type="checkbox"/> Analyze raw materials for mycotoxins	<input type="checkbox"/> Use raw material of high quality; Include Mycofix® according to contamination rate
	<b>NUTRITION:</b>	SARA (Endotoxins)		<input type="checkbox"/> Check the CHO/NSC ratio of the ration and TMR particle distribution	<input type="checkbox"/> Adjust starch value according to the management level of the farm; Adjust particle size; Include Mycofix® as preventive tools to counteract endotoxins load
	<b>MANAGEMENT:</b>	Management of late lactation Management of dry period		<input type="checkbox"/> Check for BCS at drying off <input type="checkbox"/> Evaluate energy level of close up ration	<input type="checkbox"/> Dry off cow earlier <input type="checkbox"/> Adopt controlled energy diets in close up period
	<b>DISEASES/OTHERS:</b>	Various infectious diseases (mastitis, metritis, complicated lameness)		<input type="checkbox"/> Check for the presence of chronic pathologies able to create inflammation	<input type="checkbox"/> Remove the cause of the pathology with appropriate therapy; Include Mycofix® as preventive tools to counteract endotoxins load and to sustain the liver

<b>Liver necrosis/ abscesses</b> 	Potential cause	Description of problem	Check list	Corrective actions	
	<b>MYCOTOXINS:</b>	Liver necrosis/abscesses		<input type="checkbox"/> Analyze raw materials for mycotoxins	<input type="checkbox"/> Use raw material of high quality; Include Mycofix® according to contamination rate
	<b>NUTRITION:</b>	Heavy metal poisoning		<input type="checkbox"/> Analyze copper level of TMR	<input type="checkbox"/> Adjust the total copper level to requirement
	<b>MANAGEMENT:</b>	Acidosis and SARA		<input type="checkbox"/> Check the CHO/NSC ratio of the ration and TMR particle distribution	<input type="checkbox"/> Adjust starch value accordingly with the management level of the farm; Include Mycofix® as preventive tools to counteract endotoxins load
	<b>DISEASES/OTHERS:</b>	Black Disease - <i>Clostridium novyi</i>		<input type="checkbox"/> Necropsy post mortem and anamnestic evaluation	<input type="checkbox"/> Vaccination is the best prevention; apply also flukes control strategies

<b>Laminitis</b> 	Potential cause	Description of problem	Check list	Corrective actions	
	<b>MYCOTOXINS:</b>	Ergot alkaloids, A-trichothecenes		<input type="checkbox"/> Analyze raw materials for mycotoxins	<input type="checkbox"/> Use raw material of high quality; Include Mycofix® according to contamination rate
	<b>NUTRITION:</b>	Highly fermentable diet		<input type="checkbox"/> Check the CHO/NSC ratio of the ration and TMR particle distribution	<input type="checkbox"/> Increase fiber and reduce CHO accordingly to the management level of the farm
	<b>MANAGEMENT:</b>	Floor surface		<input type="checkbox"/> Check floor status	<input type="checkbox"/> Increase the areas with soft surface and ensure enough space for cow to lie down <input type="checkbox"/> Avoid having slippery and uneven surfaces; Reduce sources of stress
	<b>DISEASES/OTHERS:</b>	Endotoxins		<input type="checkbox"/> Check the CHO/NSC ratio of the ration and TMR particle distribution	<input type="checkbox"/> Adjust starch value accordingly with the management level of the farm; Include Mycofix® as preventive tools counteract endotoxins load

<b>Acidosis</b> 	Potential cause	Description of problem	Check list	Corrective actions	
	<b>MYCOTOXINS:</b>	Type-A and Type-B trichothecenes, ergot alkaloids, silage born mycotoxins		<input type="checkbox"/> Analyze raw materials for mycotoxins	<input type="checkbox"/> Use raw material of high quality; Include Mycofix® according to contamination rate
	<b>NUTRITION:</b>	Mistakes in TMR preparation		<input type="checkbox"/> pH measurement in rumen, observe behavior of cows <input type="checkbox"/> Check the TMR formulation	<input type="checkbox"/> Adapt ration accordingly to management level of the farm: less concentrate/grains, increase fibre; Use autolyzed yeast and increase buffers
	<b>MANAGEMENT:</b>	Overcrowding, stress		<input type="checkbox"/> Compare stalls vs animals	<input type="checkbox"/> Reduce stress sources and ensure appropriate space for cows
	<b>DISEASES/OTHERS:</b>	Heat stress		<input type="checkbox"/> Check for THI (temperature-humidity index)	<input type="checkbox"/> Keep cows cool; Include Mycofix® as preventive tools counteract endotoxins load

\*DISCLAIMER:  
This table contains general advice on ruminant-related matters which, most commonly affect ruminants and may be related to the presence of mycotoxins in feed. Ruminant diseases and problems include, but are not confined to the ones present in the table. BIOMIN accepts no responsibility or liability whatsoever arising from or in any way connected with the use of this table or its content. Before acting on the basis of the contents of this table, advice should be obtained directly from your veterinarian.