

Risk factors for Johne's Disease			rupert.hough@hutton.ac.uk
Process	High Risk	Medium Risk	Low Risk
<b>Manure management</b>	<p>Short maturation period (&lt; 6 months)</p> <p>Apply to pasture</p> <p>Allow cattle on pasture after minimal clear period</p>	<p>Allow to mature outside for 6 months to 1 year prior to spreading</p> <p>Apply to land used for animal feed, bedding or silage</p>	<p>Allow to mature indoors for 6 months or 1 year outdoors prior to spreading</p> <p>Surface apply to maximise sun exposure</p> <p>Apply to land used for non-feed crops</p>
<b>Slurry management</b>	<p>Short maturation period (&lt;3 months) with no temperature monitoring</p> <p>Separated urine from faeces</p> <p>Slurry injected into pasture used for cattle grazing</p>	<p>Monitor temperature of slurry store, if temperatures can be maintained above 40 °C slurry can be applied after 2 - 4 weeks maturation</p> <p>Slurry injected into land used for feed, bedding or silage</p>	<p>Combine urine and faeces</p> <p>Allow to mature for 1 year prior to application to land</p> <p>Surface application to non-feed crops</p>
<b>Silage making</b>	<p>Grass for silage comes from a segregation area or "lepper colony"</p>	<p>Grass for silage comes from pasture where high risk manure or slurry has been applied</p>	<p>Silage process lasts more than 3 weeks</p> <p>Acidic conditions maintained throughout process</p>
<b>Water</b>	<p>Cattle allowed access to standing water and burns</p>	<p>Cattle allowed access to boggy areas</p>	<p>All drinking water provided through troughs</p> <p>All standing water fenced off</p> <p>Drainage improved on boggy ground</p> <p>Troughs regularly cleaned out and water refreshed</p>

<b>Pasture</b>	<p>Segregation area used to produce feed</p>	<p>Rotate cattle – rest pasture for 1 season between cattle</p> <p>Deer allowed to roam on pasture</p>	<p>Rotate cattle - rest pasture for 1 to 2 years between cattle</p> <p>Segregation area or “lepper colony” for test-positive animals</p> <p>Segregation areas <u>not</u> used for production of feed, bedding or other crops</p> <p>If deer are regularly seen, invest in deer fencing</p>
<b>Soil conditions</b>	<p>Acidic, organic rich, wet boggy, high altitude soils</p> <p>High iron content of surface soils and standing water</p>		<p>Maintain soils at neutral pH or slightly alkaline</p> <p>Application of fertilizer to promote good grass growth</p> <p>Sandy, dry low-altitude soils</p>
<b>Husbandry</b>	<p>Use of pooled colostrum</p> <p>Poor hygiene – dirty sheds, manure caked udders</p> <p>Communal calving area</p>	<p>Large herd size (&gt; 100 animals)</p>	<p>Small herd size (&lt; 100 animals)</p> <p>Good hygiene – sheds regularly scraped, pens cleaned after each use</p> <p>Individual calving pens</p> <p>Use of concentrates rather than home-produced feed</p>