Types of bedding system for dairy cows	Advantages	Disadvantages	Approximate costs
Cubicle bedding systems			
Deep bed sand	Gold standard for cow comfort Good environmental mastitis control Fewer lame cows (approximately 1/3 less than the equivalent mattress system) More grip in alleys and loafing areas Less cubicle rejection (one farm has found he has not had to cull **any** animals due to cubicle rejection since using sand) Sand will improve heavy ground (over many years of use) Lame cows rest for longer and recover more quickly with more frequent bouts of lying (less put off) on sand cubicles compared with mattresses	Will not suit all slurry handling systems High wear on pumps used to pump out slurry lagoons – best option is to bucket out slurry with a fore-loader straight into something like a West Spreader (tub with side impellor) Purchase of a sand spreader Extra cleaning of sand off teats Cows tend to dig (although tyres in the base will reduce this) A cheap supply of sand is not always readily available	£13.50 per tonne (Mole Valley) – although washed sand is lighter and softer unwashed, tipped sand forms a better bed (less blows about) Approximate usage – 2-2.5 tonne per cow per year Idea – trial one shed of sand cubicles for fresh calved heifers and cows and measure the improvement
Deep bed paper	Cushioned, non-abrasive and does not form slurry crust on heels Suitable for auto-scrapers Supplier reports low mastitis risk due to "alkalinity of material" Been available for over 2 years now	Expensive Requires a base layer and surface layer of different dry matter Paper blows about farm	Depends on area – supplier based in the north of England
Shallow sand on recessed mattress	As for sand and mattresses	As for sand and mattresses but fewer hock injuries than with mattresses and fewer problems with cows digging than deep sand More complicated to install	See sand and mattresses

Compartmentalised rubber crumb filled mattress	Only second to deep bed sand for cubicle comfort in most trials (cows prefer a crumb-filled mattress over foam-filled in one US study)	Some surfaces are abrasive, causing painful hock injury, especially in combination with coarse sawdust and lime. Test by firmly rubbing knuckles on a bedded surface Some surfaces are slippery, making rising hazardous and aversive for cows. The more a mattress "pits" the less likely she is to slip on rising	Wilson Pasture mat- £45 plus VAT Kit Speakman Cozy cow - £45 plus VAT
Foam filled mattress	No compartments making the cushioning properties much more even across the mattress According to suppliers foam filled mattresses are more durable than rubber-crumb mattresses as the sponge does not move nor does it become compacted		De Boer Meadow mat - £40 plus VAT (40mm thick polyethylene, guaranteed for 5 years) Quattro Products Ltd mattress (60mm thick) – £39.50 plus VAT for singles or £38 plus VAT for runs. 10 year guarantee on cover
Thick ethylene vinyl mat	Surface easy to clean Durability means they retain cushioning properties for longer than mattresses making them more comfortable when compared after 5 years of continuous use Foam can be recessed into concrete under mats giving them mattress level cushioning from day 1	Not as comfortable as mattresses on day zero Some surfaces are abrasive, causing painful hock injury, especially in combination with coarse sawdust and lime. Test by firmly rubbing knuckles on a bedded surface Lack of "give" (pitting with cow stood) makes them more slippery than mattresses or sand Mats can move out of place	Cow comfort Maxibed (32mm) - £42 plus VAT per mat
Dense rubber mat	Durable cushioning Studs hold mats in place Good grip	More expensive	Kraiburg super-soft cow bed (30mm) - £45 plus VAT with 10 year guarantee

Cubicle bedding systems that are commonly associated with problems			
Thin ethylene vinyl mat	Cheaper but otherwise similar to thick mats	Less cushioned – test by punching mat as hard as you can or dropping to knees on surface. Remember this surface should cushion a falling 725kg cow Some surfaces are abrasive, causing painful hock injury, especially in combination with coarse sawdust and lime. Test by firmly rubbing knuckles on a bedded surface Mats can move and curl unless fixed with clips (extra cost)	DeLaval cow comfort Mayo-mat (22mm) - £30 plus VAT or durasoft mat
Quarry belt	Cheap	Lack of "give" (pitting with cow stood) makes them too slippery for most cows to rise comfortably Abrasive to hocks Can move about in cubicles	
Concrete	Cheap, durable and easy to maintain Usually bedded with straw	Needs a depth of muck to give adequate cushioning and then it becomes a major mastitis risk	
Bitumen/tarmac		Needs a depth of muck to give cushioning and then major mastitis risk	
Clay, soil or limestone		Needs a depth of muck to give cushioning and then major mastitis risk Bases go uneven and become uncomfortable for cows	

Loose housing systems			
Loose housing – straw yard	Excellent cow comfort Can work out cheaper to run than a cubicle system when all hidden costs and benefits taken into account (MDC report 96/R3/17) Heifers given straw yards in the springing and fresh period (targeted) have significantly healthier claws than those on cubicles (Webster 2002) Some loose yard space is essential for housing lame animals or animals that reject cubicles	Increased mastitis risk – bedded areas must be clean (bedded daily), dry and lightly stocked (ideally 7.5m^2 for animals producing 6000L over 305d, 12.5m^2 for animals producing 10,000L over 305d). There should be plenty of loafing area (more than 2.5m^2 per cow) to encourage bulling animals away from the lying areas Requires mucking out every 3-4 weeks (and cows need an alternative place to lie if this is prolonged)	Approximate cost £30/tonne (may be cheaper if hauled by you) or £40/tonne in Scotland Recommended usage of at least 3 tonne per cow per winter
Loose housing – sand yard	Excellent mastitis control Sand may be cheap Does not require mucking out every 3-4 weeks	Pats need to be "scooped out" twice daily, hence not labour saving Unsuitable for cows to calve on (sand sticks to calf) Sand can be more expensive than straw in some areas	£13.50 per tonne (Mole Valley)
Loose housing – sawdust or shavings yard	Bulk sawdust cheaper than straw in some areas	Mastitis risk (esp. Klebsiella) Occasional splinter or nail with shavings – one casualty makes operation not cost effective	Very variable

Pasture			
Pasture	Gold standard for cow comfort in general Track maintenance is the only significant cost although management is more challenging for the high yielding cow Suitable for herds that can use extended grazing on sandy soils or that can batch calve a group of heifers in the spring	Tracks need to be well maintained to minimise lameness related problems Dairy cow nutrition more challenging to control Pasture needs managing and rotating to minimise mastitis risk	See Autumn newsletters for track costs