PADDOCK TO YARD

The milk harvesting process starts when cows are taken from the paddock. A well-designed, carefully built and properly maintained paddock-to-yard system can produce many benefits. These include:

- reduced lameness, less mastitis and better general animal health;
- faster and easier stock movement;
- cleaner cows, reduced teat washing;
- less laneway maintenance;
- reduced environmental bacteria in milk – improved milk quality;
- easy access for drain cleaning; and
- more-efficient paddock access.

If gateways and laneways are poorly designed, constructed or operated they can reduce the efficiency of the milk harvesting process and potentially contribute to animal health problems.

This chapter contains ideas to consider on the following key areas:

Information in this chapter will assist in developing a good laneway system.

Key principles to keep in mind ...

It is important to keep key principles of cow behaviour in mind when considering how to redesign this part of the milk harvesting process. An understanding of the way a cow walks and responds to being pushed is critical. Increased efficiency is not a matter of running cows to the dairy, but looking at why the cows are not moving at their normal speed and correcting any potential bottlenecks. Keep in mind:

- Normally, cows walk with their heads down, looking where they will place their front feet.
- Cows prefer little physical contact between each other, so that they can concentrate on where to place their next step.

A cow that is able to move along quietly will seldom misplace a foot, even on a poor surface.

Walking speed

Perceptive farmers usually see that cows are slowing down for a good reason and slow down also.

- Cows have an average walking speed of 2-3 km per hour.
- On a good laneway system, cows can walk at up to 4.5 km per hour.

If the surface of the laneway is poor it will take the cow longer to walk along it.

Foot placement

Cows carefully place each front foot in a spot selected as safe to step on. The hind foot is also placed on ground that the cow has seen. Cows may not be able to place their feet in 'safe' spots for a number of reasons:

- If the laneway surface is littered with stones, there may be no safe spots available.
- Bunched cows shorten their strides, resulting in the rear feet not being placed carefully.
- Cows will also lift their heads when bunched and cannot see where they are placing their feet.

Any time a cow cannot place her feet in safe spots she will slow down in an attempt to avoid injury to her feet.

Herd dominance

When cows are walking to the dairy they will be in 'social' groups. The most dominant group of cows is in the middle, with the least dominant cows at the rear.

- When the dominant cows stop, the entire herd stops.
- Low order cows will not walk past more dominant cows.
- Cows avoid touching each other, even when moderately bunched.
- The most dominant cows within each group control those less dominant than themselves. This explains why some cows slow down or even stop, as if waiting for the most dominant cows to continue walking.

Continuing to push the last cows will only cause the herd to bunch up, rather than increase their speed.

The main hazards associated with this part of the milk harvesting process include:

- farm vehicles – poor maintenance and untrained operators pose a risk;
- stressed cows – stressed or frightened cows behave unpredictably;
- fencing – fencing equipment and wire can be dangerous in unskilled hands; and
- deep drains – pose a particular threat to children.

Entry to laneway

Paddock gateways

Unless correctly designed, paddock gateways may be one of the key factors limiting how fast cows travel to the dairy. Any aspect that restricts cow-flow from the paddock into the laneway should be avoided.

Width restrictions

If the gate from the paddock to the lane is narrower than the lane, it will create a bottleneck.

- Lane width will limit cow speed – generally there is no advantage in gates wider than the laneway.
- Paddock gates should be the full width of the lane to enhance cow-flow.

Gate position

Optimum positioning of gates can make it easier to get the cows out of the paddock.

- Angled, or offset, gates improve cow-flow and reduce laneway wear.
- Provide two access points to the paddock using V gates (double gates) angled at 45° to the lane (see Figure 3.1).
- V gates increase cow speed by removing the need to do a 90° turn into the lane.
- V gates can reduce the muddiness of gateways, as cow traffic is halved.
- V gates also provide direct paddock-to-paddock access – useful when moving dry stock or machinery.

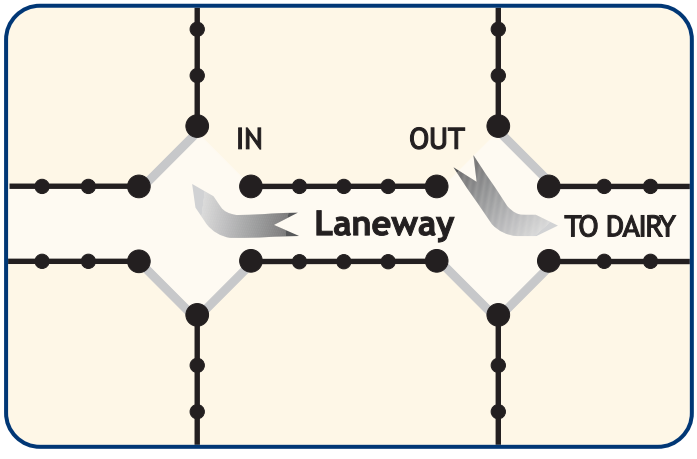

Figure 3.1: Open V gateways with access paths.

Source: National Milk Harvesting Centre.

Another method of overcoming paddock access difficulties is to open the entire front of the paddock.

- The front fence can be designed to either lift up or fold down – providing a wide access way for stock.
- A full, front-opening paddock reduces stock use per metre – this reduces mud.

Timer latches that drop the gate tape after a pre-set time are available in New Zealand. The farmer sets the timer when shutting the cows in. Once the pre-set time has elapsed the gate tape is dropped and a bell sounds. This encourages the cows to begin leaving the paddock, without the stockperson directly initiating the process.

Timer latches can reduce the time spent by the stockperson retrieving cows for milking.

Single wires are hard to see – use coloured tapes for gates.

Other restrictions

Any aspect that restricts cow-flow from paddock to laneway should be avoided.

- Cows milling around to get a drink may block the gateway, narrowing the gap for other cows to exit.
- Moving troughs away from the gate prevents drinking cows blocking the gateway – also reduces bogging around gateways.

Gateway drainage

Care should be taken not to direct water from a gateway onto the laneway. Gateway drainage should:

- divert water and allow gateways to dry out;
- reduce the incidence of mud; and
- improve gateway stability.

Drainage may consist of diverting water before it gets to the gateway, a culvert to carry water underneath, or a combination of both.

The Countdown Downunder Guidelines recommend fixing muddy areas as a control measure in maintaining teat health.

Laneways

There are many things to consider when designing or redesigning farm laneways. Careful attention to the width of laneways, the distances cows have to walk, and restriction and distraction points can result in improved efficiency.

Laneway design

The design and construction of laneways has a big impact on cow-flow, walking speed and herd health – particularly lameness. Laneways should have:

- enough width to allow for unconstrained movement;
- a well compacted soil or rock base;
- a crowned surface layer that sheds water;
- an efficient drainage system; and
- minimal right-angled turns.

Some laneways on the farm should also be constructed to withstand heavy vehicle traffic.

Width

If farm laneways are the right width the herd has sufficient room to move. Cows with sufficient space are less likely to push or be pushed.

- If alterations to the width of laneways do need to be made, the section closest to the dairy should be widened first.
- If cows are flowing into the yard directly from the rear, have this section of the laneway widened out to the same width as the yard.
- Access to the yard should be at least the full width of the laneway (see Figure 3.2).

Figure 3.2: Full width laneway entry into yard.

Source: National Milk Harvesting Centre.

Laneway-yard junctions, p57.

Herd size & width

The number of cows in the herd should determine the width of a farm's laneways. New laneways should be sized for the expected future number of cows.

Table 3.1 gives suggested laneway widths for different herd sizes. These values should be used as a guide, because it may not be possible to achieve these widths in all situations. Hilly areas can sometimes restrict laneway widths.

Table 3.1: Recommended laneway dimensions for milking herds.

Cow numbers	Width – metres
<120	5.0 m
120 – 250	5.5 m
250 – 350	6.0 m
350 – 450	6.5 m
>450	8.0 m

Note: Laneway width is only the actual width cows walk on. It does not include table drains.

Note: Vehicle access requires a minimum width of 3.7 m.

Source: National Milk Harvesting Centre.

Length

Locating the dairy in a position that is most central to the whole farm means cows are not walking excessive distances to the dairy. While dairy location is not something that can be changed immediately, it is an important consideration during the planning of a new dairy.

Table 3.2: Energy requirements for cows walking one kilometre.

Cows walking on ...	Energy used ...	Equivalent to energy required to produce ...
Flat terrain	1 MJ	200 ml milk
Steep terrain	5 MJ	1000 ml milk

Note: Slopes in between use a proportional amount of energy.

Source: Target 10, Natural Resources and Environment.

Laneway layout

The laneway layout should facilitate easy movement to and from the dairy. Some farmers use systems that allow one group of cows to travel in one direction to the dairy while another group is being moved away. There are two common designs:

- Loop laneway design – one side of the loop is for access to the paddocks, the other side for returning to the dairy.

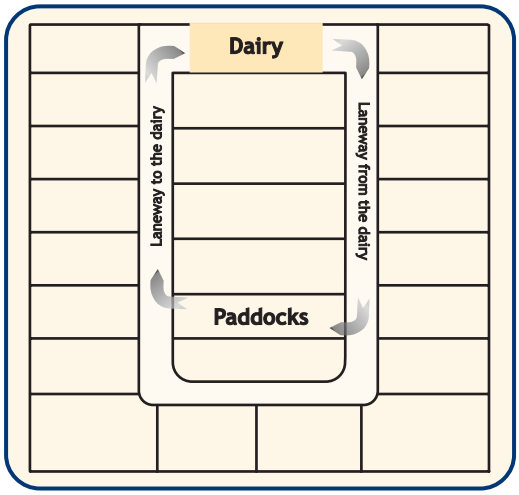

Figure 3.3: Loop laneway design.
Source: National Milk Harvesting Centre.

- Split lane design – wide laneway divided by a fence to create a two-lane effect. The width of the 'return' lane may only need to be 2 m wide if the cows return in small batches from the dairy.

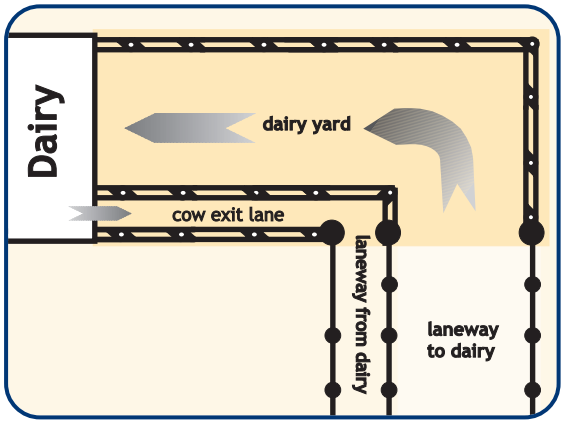

Figure 3.4: Split lane design.
Source: National Milk Harvesting Centre.

Careful layout of laneway systems is particularly important for large farms or those running multiple herds, as they allow multiple groups to be moved in counter directions without herds mixing.

Restrictions & distractions

Minimising restrictions and distractions for cows can improve cow-flow rates.

- Physical restrictions include mud, width reductions, stones on the surface, sharp corners, a steep hill or the weather.

- Social restrictions are usually to do with the 'pecking order' in the herd.
- Distractions include other animals or poor stockhandling – anything that distracts cows' attention and slows progress towards the dairy.

Physical restrictions

Most physical restrictions can be eliminated, particularly during the planning phase. If restrictions cannot be avoided, their impact must be minimised.

- Proper laneway construction and maintenance ensures a solid, stone-free walking surface, devoid of mud.
- If possible, avoid steep hills and width reductions during the planning phase.
- Smooth out sharp bends by a series of smaller bends – replace 90° bends with two 45° bends.

While the weather cannot be changed, it may be possible to change the time of day when the cows are walked home to avoid the worst conditions. Cows can also be directed to a different paddock, if the rotation permits, so that bad weather has less of an effect.

Social restrictions

More-dominant cows may be restricting less-dominant cows by stopping or slowing down. This is especially so if the bulls are running with the herd.

- Social restrictions may also result from pushing the cows too hard and causing them to bunch up.
- Cows like to have space to move in – insufficient space results in pushing, shoving and even fights.
- Manage social restrictions – respect the 'pecking order' of the herd. If dominant cows slow or stop, the stockperson should do likewise to avoid bunching. Bunched cows walk slower and become more aggressive.

Distractions

Distractions are anything the cows find interesting and worth stopping to look at.

- Distractions include bulls, calves or dry cows, a barking dog, or loud and unusual activity by the stockperson.
- Move other animals away from the laneway or use screens to reduce the impact of the distraction.
- Modify any stockhandling behaviours that may cause problems i.e. yelling, tooting motor bike horns, etc.

Moving too close within a cow's flight zone may cause her to behave unpredictably.

Laneway construction

The materials and methods used to construct a laneway have a big effect on the suitability and longevity of the laneway. Laneways need:

- a well-compacted soil or rock base;
- a crowned surface layer that sheds water;
- an efficient drainage system;
- a fencing design that keeps cows out of the drain but provides access for cleaning; and
- a well thought out, realistic maintenance program.

Having a broad understanding of these issues should help when dealing with contractors.

Foundation & surface layers

A good laneway is constructed in layers. A foundation, or base layer, is formed with a surface, or wearing layer, placed on top (see Figure 3.5).

The foundation layer provides the structural support for the wearing layer – if it is weak the surface layer may break up and collapse.

- The foundation layer should be constructed in layers, each up to 150 mm deep. Compact each layer thoroughly.
- If water can penetrate into the foundation layer it may lose its strength – this results in a localised collapse of the wearing layer and a hole forming.
- Extensive water penetration into the foundation layer may result in the collapse of large areas of the laneway.

The surface layer has two functions: to provide a surface for cows to walk on and to shed water, so as to protect the structural integrity of the laneway.

- A poor surface will slow the cows' walking speed.
- Laneway surfaces should be smooth, with a minimum of loose or large particles that can cut or bruise hooves.
- The surface layer must shed water from the laneway, to avoid water scours and protect the foundation layer.
- Surface pocketing caused by the cows' feet can trap water, turning the wearing layer into slurry and the foundation layer into a bog. Regular repair and maintenance is required.
- The surface layer should be 100-150 mm thick.

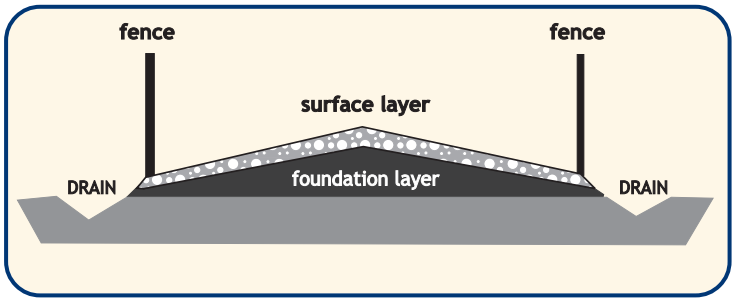

Figure 3.5: Laneway surfacing and formation.

Source: After diagram in 'Complete Guide to Dairy Design Systems' VDIA.

Materials

The foundation and surface layers of a laneway each require the use of materials that will withstand the threat posed by water and constant use.

- In many regions, accessing suitable materials can be a problem – less-than-ideal materials may require stabilising or strengthening.
- Paying more for good-quality materials may save money in the long run – factor in the costs of lameness and mastitis, extra maintenance or laneway replacement.

Materials — foundation layer

Topsoil and grass should be removed before beginning the foundation layer.

- Topsoil is not suitable for use in the foundation layer. The material removed from the table drains may be used, provided it is not topsoil.
- Moist sub-surface soil is suitable.
- If not required for dam construction, the material dug out to make effluent ponds is also suitable for laneway foundations.
- Soft clay is unsuitable for use in foundations, unless stabilised with other materials.
- Hydrated lime, evenly spread and uniformly incorporated to a depth of 125 mm, will allow a soft clay to become stable once compacted.
- Cement can be used as a stabiliser in foundation layers – the usual recommendation 1-4%.
- Investigate using enzymes (Paczyme) or ionic soil stabilisers (Terra Firma).

If the material available does not create a satisfactory foundation it is possible to use a 'geotextile' – an industrial fabric used in earthworks – to cover the shaped base layer before adding the top layer. While porous and allowing water to pass through, geotextiles hold soil and rock in place and will prevent the surface layer from being pushed into the foundation layer, particularly by wheeled traffic. The geotextile will distribute applied loads over a wider area.

Materials — surface layer

Topsoil and grass provide a soft, cushioned surface for cows to walk on, but they are unable to withstand the rigours of frequent use. When choosing materials, keep in mind the dual purpose of the surface layer – to provide a comfortable walking surface for cows and to protect the underlying foundation.

- This surface layer is usually made from a mixture of materials – often small stones, clay (15% to 30%) and sand.
- The fine particles of clay fill the gaps between the larger particles, binding them together. It also gives the surface a long-wearing and smooth finish.
- Incorporating 0.3-1% cement into the clay capping mixture can help stabilise the surface and prolong its life.

- Trialing small loads of proposed materials will show which are going to work and which are not.
- Well-rounded gravel, less than 25 mm in diameter, is preferable to large stones – they can be kicked aside, leaving the surface susceptible to water penetration and damage.
- Crushed limestone makes a suitable material for surfacing – check local lime for suitability. Generally spread as a 50-100 mm layer. It needs firm compaction.
- Sand alone does not make an ideal surface – it is abrasive on cows' feet and washes away too readily.

Concrete lanes are used in areas of high rainfall, such as northern Queensland. They provide a clean laneway and reduce mud on udders. They do require management at the boundary between the concrete and the paddock. A section of sawdust at the junction can help stones fall off before they get onto the concrete. It is important to keep the laneway clean. To that end, some farmers have sweepers or scrapers on four-wheeled motor bikes.

In south-eastern South Australia there is a trend to cover the hard limestone lanes with wood chips. Cows have demonstrated a desire to walk on softer materials in trials at Flaxley. There is no significant problem with wood chips wedging in the hooves.

Figure 3.6: Wood chips covering the laneway surface.
Source: National Milk Harvesting Centre.

Keep children away from the construction zone and heavy equipment.

Surface slope

Laneway drainage is achieved by forming the laneway with a slight camber or slope to allow the water to run off it, in much the same way as a road is designed. An experienced laneway construction contractor will be able to form the laneway to drain correctly.

- The surface of the laneway should be raised in the centre to aid drainage.
- The camber (sideways slope) should be 5-10% (1 in 20 to 1 in 10) – this should be sufficient to shed water, yet still be comfortable for cows to walk on.
- The camber should not be greater than 10% (1 in 10) or cows will only walk on the middle or edges of the laneway, where the camber is less.

Slopes on hills

A sideways slope of 10% (1 in 10) may be insufficient on its own to shed water for laneways constructed straight up hills.

- A steep slope along the lane can mean water running down the lane before running off the side – resulting in long water scours in the surface layer.
- A steeper sideways slope may cause cow discomfort to such an extent that cows only use small, narrow portions of the laneway where the camber is flat enough for them to walk on.

While there are no published solutions specific to this problem, 'speed bumps' have been recommended as a way to divert water off steep laneways. Some alpine park access roads have 'bumps' installed that run the water sideways off the laneway and some city parks use open drains across pathways to divert water sideways.

Compaction

Thoroughly compacting each layer of a laneway is a vital step. Loose, open soil has much less strength than well-consolidated soil. Compaction is one way of increasing the strength of a soil in a short time.

- Each 150 mm layer of laneway material should be mechanically compacted to maximise layer strength.
- Cow traffic does not provide an adequate substitute for mechanical compaction – use graders, tractor with mounted blade, or vibrating rollers.
- Loose sand can be forced between cows' claws and may cause lameness.

Laneway drainage

Drainage is extremely important. A well-drained laneway means:

- less maintenance and the laneway will last longer; and
- cows are out of the muck and have more confidence with their footing.

A dry laneway is achieved by:

- a well-crowned and compacted soil base;
- a firm impervious surface;
- minimal shading from trees; and
- regularly clearing and maintaining drainage points.

Table & spur drains

Creating table drains at the sides of the laneway helps to take water away, maintaining laneway condition.

- The recommended size for table drains is 300 mm deep and 1 m wide.
- Spur drains should be installed every 40-80 m to empty the table drains on to paddocks.
- The distance between spur drains needs to be less on steeper slopes.

Water drained from laneways is an environmental hazard and should be contained on the farm.

Watertable depth

A watertable close to the surface will hinder drainage and may cause the laneway to become wet, reducing its structural integrity and increasing its chance of collapse.

Adequate watertable depth is essential to good drainage – ensure the water table is a least 600 mm below the surface to aid the draining of water away from the laneway.

Deep drains and wet clay are hazards to vehicles and people.

Laneway fencing

Good fencing can prolong the life of a laneway. Keeping cows out of drains not only reduces their exposure to mud, it also minimises damage to the drains.

Positioning of posts

Placing the fence in different positions in relation to the laneway achieves different objectives.

- Fences on the lane side of the drain prevent cows walking in the drains.
- Fences on the paddock side of the drain leave clear access for cleaning the drain.

To complicate matters further, the cows' feet tend to move any muck sideways to the edges of the lane. This causes a small bank to form inside the fence. This bank can act as a barrier, preventing water from entering the drains and encouraging surface scouring.

The ideal solution would be a fence that had posts on the paddock side of the drain to facilitate cleaning, but with the wires on the lane side of the drain to prevent cows walking in them (see Figure 3.7).

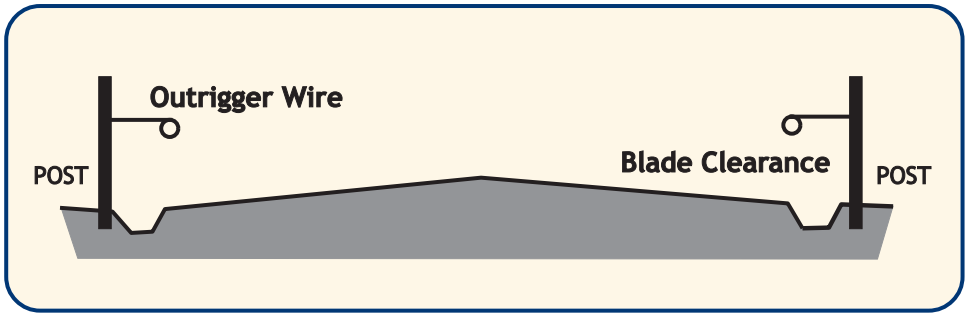

Figure 3.7: The ideal laneway fence to keep cows out of the drains, while allowing access for cleaning.
Source: National Milk Harvesting Centre.

Position of wire

The position of the fence wire controls cow access to the drains. The wire should be on the lane side of the drain, to stop cows walking in them.

- Position the bottom wire high enough above the lane surface to allow blade access to the drain for cleaning.
- Consider a post-and-rail fence for lengths of fence exposed to high stock pressure – wires may not be suitable.

Figure 3.8: Laneway drainage.
Source: National Milk Harvesting Centre.

Laneway maintenance

A regular maintenance program should be followed. Laneway maintenance left until serious problems occur will have repercussions for the performance in the dairy.

- Maintenance should be part of the plan, not a reaction to a problem.
- Any maintenance program should have two focuses – keeping surfaces repaired and maintaining effective drainage.
- Fill and compact potholes as they occur.
- Grade surfaces on a regular basis – at least annually. Tractors on laneways cause the surface to lift and rut quite quickly, as does regularly holding stock on laneways.
- Deal with small blockages to drains as they occur – carry a shovel when getting the cows in.
- Use a tractor blade to clean out edges and drains, as a build up of grass and manure can effect drainage – it may need to be done annually.
- Fix leaking troughs and irrigation equipment.
- Prune or remove trees near laneways – they block sun and wind, and keep laneways from drying out.

After a run of dry seasons, it is easy to let laneway maintenance go. A wet season can create herd health, financial and workload problems if maintenance has been neglected.

Laneway-yard junctions

Junction design

A junction occurs in a laneway each time the surface changes – for example when a gravel laneway becomes a concrete yard. Junctions are a common problem area and require careful design.

The designs of many laneway-yard junctions are poor. Water from the yard washing or rainfall can drain directly onto this section of the laneway. The area becomes muddy and can remain so for extended periods of time. The junction may become so damaged that it becomes an environmental problem.

Junction drainage

Water is the enemy of a stable laneway and junctions are susceptible to water penetration. Good drainage goes a long way to maintaining the structural integrity of a laneway-yard junction.

- Unless the area is designed as a feeding pad or loafing area, cows should be moved away from the dairy immediately after being milked, to avoid manure accumulating.
- Accumulated manure will form a barrier to drainage on the edge of laneways – trapped water causes laneway break down.
- Provision also needs to be made for stormwater that may drain onto, or pool behind, the laneway. Stormwater drains beside the laneway can also be used to carry rainwater that is diverted from the yard (see Figure 3.9).
- Surface water from intensive stock areas needs to be collected in the effluent system.

High point junction

The easiest way to drain water away from the junction is to make it a high point. This can be done by sloping the gravel section up to the junction, then sloping the concrete section to divert wash water away from the junction. A 150 mm kerb at the laneway-yard junction assists in keeping the laneway dry.

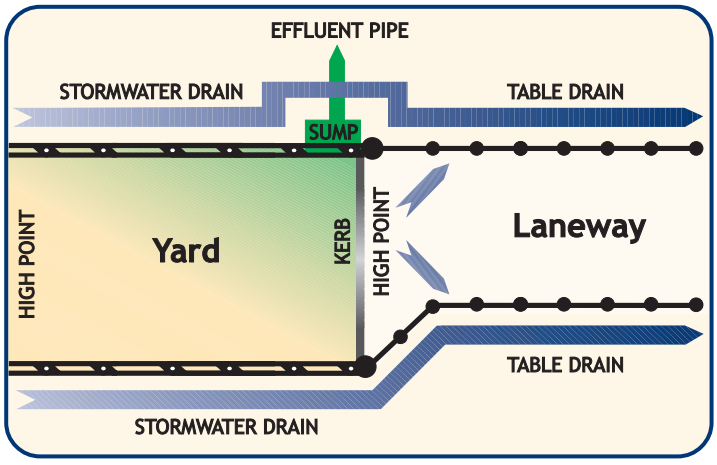

Figure 3.9: Laneway junction showing drainage.

Source: Based on diagram in 'A Complete Guide to Dairy Design', VDIA.

Dovetail high point design

There are many ways a laneway junction can be made a high point. One alternative is to 'dovetail' the concrete and gravel surfaces (see Figure 3.10). The gravel crown is easily eroded and must be repaired promptly to avoid the lane breaking up and bogs forming. Figure 3.10 shows the back section of the yard sloping down towards the dairy.

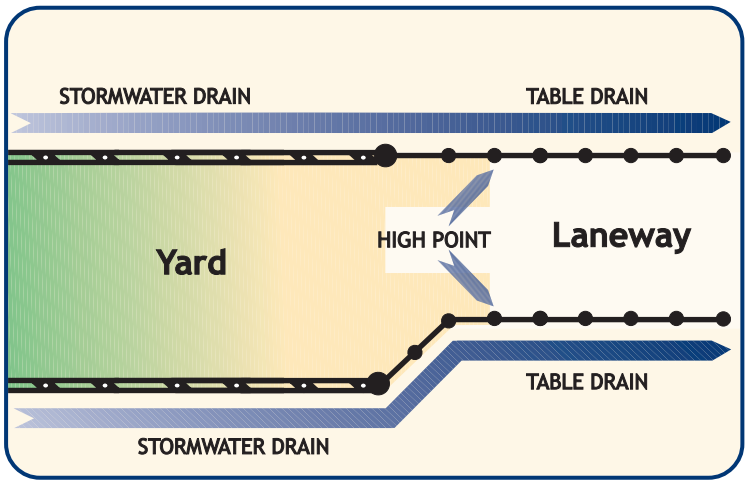

Figure 3.10: Dovetail high point design.
Source: Based on diagram in 'A Complete Guide to Dairy Design', VDIA.

Junction kerbing

If a high point is not possible, the most cost-effective solution may be to install a 150 mm high kerb across the laneway. Installing a drain on the yard side of the kerb will enhance the drainage away from the junction.

Figure 3.11: Kerb at the yard track junction prevents the wash water from flowing onto the track.
Source: National Milk Harvesting Centre.

Junction surfaces

When designing the laneway-yard junction it is essential to keep the surface in mind. Cows need to have confident, comfortable footing if they are to flow easily without restriction.

Some farmers in dry climates find that placing sawdust on the first 40 m or so helps to keep the laneway junction area dry. The sawdust needs to be about 100 mm thick. Timber poles or railway sleepers can be placed along the edge to keep sawdust in place. The sawdust can be graded off each year and spread on paddocks. The advantage of sawdust is that when it is carried onto the yard surface it is not abrasive to hooves. Small woodchips are also useful, although they may cause problems for the drainage sump in some yard washdown systems.

Emergency surfaces

The surface of the laneway-yard junction can break down and emergency measures will be necessary until a full repair can be completed.

- Shredded pine, wood shavings, wood chips, hay and straw are all practical, short-term solutions – they soak up moisture to reduce the bogginess and cover any exposed stones creating a comfortable walking surface.
- Emergency surfaces wear away quickly – they will need replacing or topping up as required until the junction can be properly repaired.
- Conveyor belting can be used as an emergency junction surface but it often becomes slippery unless cleaned regularly.

Avoid using materials that become slippery when wet.

Stone traps

When cows walk onto a concrete yard or laneway section they can carry gravel and pebbles with them, particularly if the junction is muddy or inadequately constructed. These small stones pose a danger to cows' feet if they fall onto the concrete yard.

Kerb as stone trap

Kerbing can act as an effective stone trap, as cows lift their feet clear of the ground. This creates an opportunity for stones and pebbles to fall off.

- A 150 mm high kerb at the leading edge of the concrete reduces stone transport onto the yard without disrupting cow-flow significantly.
- A single pine log across the laneway at the junction can act as a kerb.
- The kerb can be a restriction if cows don't have sure footing on either side.
- If stones are allowed to accumulate on the other side of the kerb the cows may baulk rather than walk across a painful stretch of stones.

Cushioned surface stone trap

A stone-free soft surface in the lead up to the junction can act as a stone trap.

- Fifty metres of coarse pine bark, wood chips or sawdust placed before the start of the concrete works as a stone trap.
- Carpet or other matting on the first section of concrete can trap stones effectively.

Footbath stone trap

Footbaths of 100 mm depth are also used to remove stones from cows' feet with variable success.

Grates or carpet in the base of the footbath can reduce the discomfort caused by walking on the stones washed from previous cows' feet and can be of benefit if the footbath is creating a restriction to cow-flow.

Small stones on concrete are also a safety hazard to people.

Yard entry

Entry into the yard is best through a full-width gate, as this does not create any restriction to cow movement onto the yard.

Yard entry options

Rear access into the yard reduces cows milling around and assists with good cow-flow. If cows can fill the yard in the same order they come in from the paddock, they will flow better into the yard and dairy.

Entry into the side of the yard may be necessary due to the position of the laneway, but good cow-flow can still be achieved if the entry is near the rear of the yard (see Figures 3.12 and 3.13).

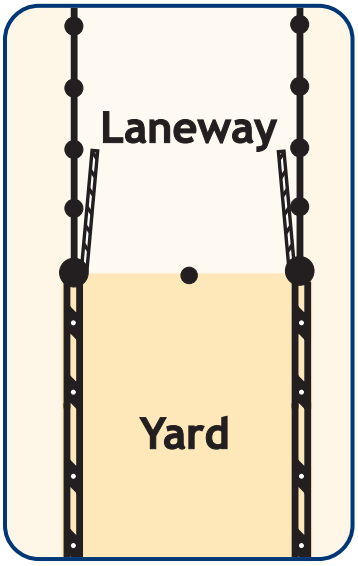

Figure 3.12: Rear access to rectangular yard.
Source: National Milk Harvesting Centre.

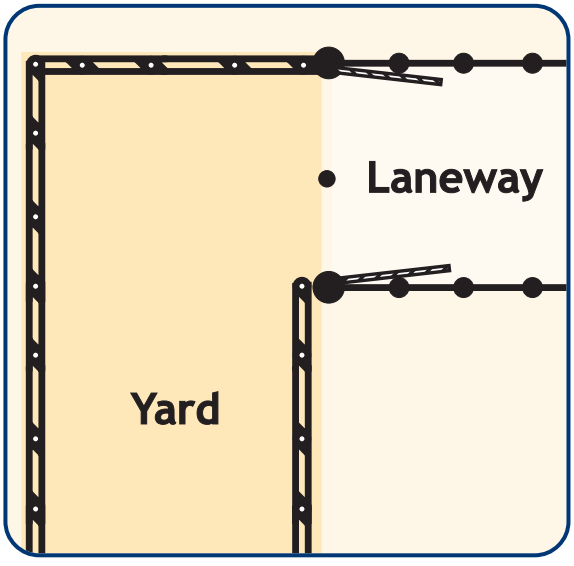

Figure 3.13: Side access to rectangular yard.
Source: National Milk Harvesting Centre.

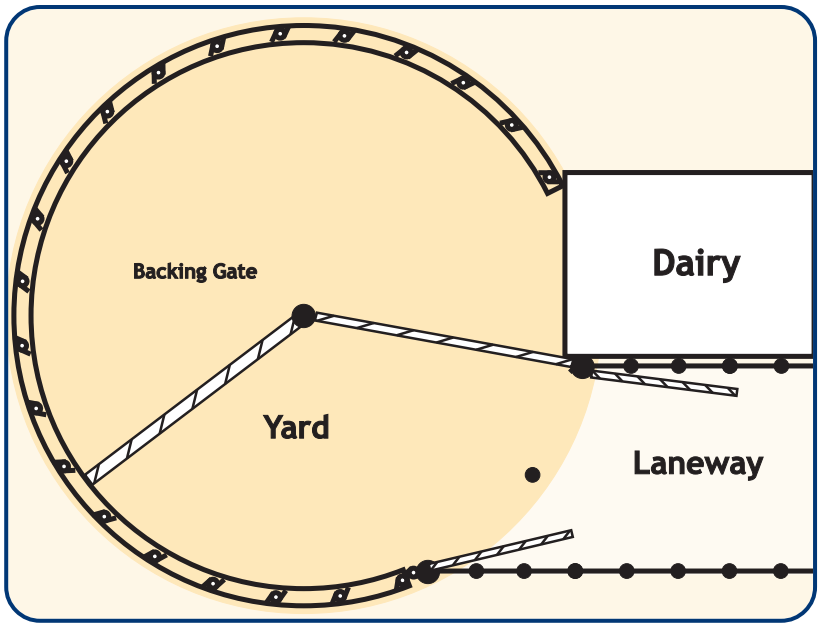

Figure 3.14: Entry to round yard.
Source: National Milk Harvesting Centre.

Yard gates

Access to the yard should be a minimum of 6 m wide and the full width of the lane. The type of gate used to close this gap is not critical. The key criteria are the strength of the gate and its ease of opening and closing.

- Long, single gates can be swung off a large, well-secured post if suitable gate stays are utilised.
- Staying is essential if the gate is to latch correctly and easily each time it is closed.
- Wide openings may require two gates to avoid large, cumbersome gates which are difficult to move.
- Large, wide gates can be supported by a wheel – making them safer and easier to operate.
- Using one or two gates means each gate can be opened back against a fence. If more than two gates are used, at least one gate will be in the stream of cows when open.
- A hitching post will be required to keep any gates in the cow stream open while the cows are entering the yard. An unlatched gate that shuts during cow entry will cause disruption to cow-flow and milker frustration.
- Hang gates far enough off the fixing post so that hands and fingers cannot be jammed between the gate and post.

Hitch metal gates to a post to hold them open and do not stand behind the gate when cows are around, to avoid being crushed.

Keep gate hinges well maintained to avoid heavy lifting.

Rounding up ...

The design and maintenance of paddock gateways, laneways and junctions is critical for the efficient delivery of cows to the dairy.

- Minimising restrictions and maintaining a good laneway surface is the best way to encourage cows to keep walking to the dairy.
- Water is the enemy of a stable laneway.
- Regular laneway maintenance saves money in the long run.

CowTime Cost Cutters

Many of the suggestions covered in this chapter can be implemented easily and for little cost. The following list contains some quick and cheap changes to improve key aspects of the paddock to yard part of the milk harvesting process.

- Support heavy gates with wheels.
- Put in two gates per paddock to reduce gateway wear and tear.
- Put in hitching points so that open gates don't blow shut.
- Slow down – calm cows produce more milk when they get to the dairy.
- Slow down in farm vehicles and keep tractor use on laneways to a minimum.
- Leave the dog tied up (unless it brings in the cows in a calmer state than you can!).
- Clean drains to make laneways last longer. Carry a shovel for spot maintenance.
- Attach an outrigger wire to the laneway fence to keep cows out of the drains.
- Site water troughs in paddocks away from gates and laneways.
- Carry out regular laneway surface repairs to avoid serious problems.
- Take right angle bends out of laneways and fence them as broad curves.
- Critically watch the cow movement and remove restrictions and distractions to cow-flow.
- Remove trees that shade the laneway and cause bogging.
- Get cows to enter the holding yard at the rear to preserve their social order for milking.
- Put a log across the laneway-yard junction to stop stones dropping onto the concrete.
- A load of sawdust at the laneway-yard junction can reduce lameness.
- Allow cows to move along the laneway at their own pace to minimise lameness.
- Regularly clean out stones and debris from stone traps.

Further information ...

Notes on construction of a farm track. *Factsheet L on website www.westvicdairy.com.au/lameness*.

Countdown Downunder Technote 9.2 – reduce mud problems.