CRUSH Design & Safety

Crushes
the **Good**, the **Bad**, and the **Ugly**

A guide for farmers, veterinarians, and crush manufacturers to assist in making the workplace surrounding the crush a safe place

Australian Cattle Veterinarians
a special interest group of the Australian Veterinary Association

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Editor: David S Beggs BVSc MVS

This publication is based on research undertaken by Sandi Jephcott BVSc MSc MBA, and the accumulated comments and wisdom of many ACV members.

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Introduction

The Crush is the primary worksite of the veterinarian on many farms and feedlots. It can also be a dangerous place – injuries from crushing, being kicked, or being knocked by fast moving bits of the crush are well documented.
It is a common complaint of cattle veterinarians that they are asked to work in crush areas that are at best very inefficient and at worst unsafe.

Common classes of hazards that need to be taken into account include:

a) Sudden unplanned movements of animals in and around the crush
b) Musculo-Skeletal disorders arising from repeated activities that involve repetitive straining. Reducing manual handling is an important concept in Occupational Health and Safety
c) Environmental hazards including exposure to UV light and the elements, tripping hazards, protrusions at head height, electrical hazards, and hazards due to slippery wet conditions or inadequate lighting.

There are specific OHS responsibilities placed on the designers and manufacturers of plant that may be used in a workplace. There are also responsibilities which can vary from state to state of the owner of the site, the manager of the site (typically the farmer), the person in charge (typically the veterinarian), and all employers concerned (the farmer and the vet practice). This document is designed to assist vets, producers and crush manufacturers to identify potential hazards, to build and install safe and appropriate crushes, and to allow a risk and hazard analysis of the crush and surrounding area.

It is acknowledged from the outset that safety and efficiency in animal handling involves much more than good crush design: yard design generally, the animals being handled, and the handling skills of the operators are major factors but are beyond the scope of this document.

Choosing a crush will involve consideration of the stock to be restrained, the procedures to be performed, staffing levels and experience, and cost. A facility that is entirely appropriate for vaccinating calves may be entirely inappropriate for performing penile surgery on a bull.

Disclaimer

Anatomy of a Crush

A Crush consists of the following basic parts:

1. The head bail/front gate
2. The side gates
3. The vet gate
4. The back gate
5. The forcing area
6. The floor
7. The roof
8. The surrounding area
9. Other features

1. The Head Bail / Front Gate

The head bail/front gate is the front end of the crush, designed to restrain the animal by gripping its head/neck. There are two basic types of bail - Walk Through and Guillotine type. Head bails may also have some sort of mechanism to steady the animals head.

Walk Through Bails

This type of restraint allows the cattle to be restrained, and to travel forward through the front of the crush when the gate is opened. Whilst tending to be more expensive, they are much safer from the animals point of view if there is a possibility of the animal going down as there is much less likelihood of the animal becoming trapped and/or choking. It can also allow for the animal to move forward into a yard in front of the crush without ever having to be in a yard with a human

Figure 1: Some Examples of Walk through Crushes

Guillotine type Bails

This type of restraint is common as it is easier to build. To open the front gate of the crush, the user needs to have the animal move backward out of the bail, then open the gate, then move the animal forward. This can be dangerous for the animal and operator if the animal moves forward too quickly as it may become trapped in the bail, or in contact with the operator. Animals that slip are at risk of getting their heads caught in these types of bails, and choking. Walk Through type bails are strongly recommended for large bulls and fractious stock.

Figure 2: Some examples of Guillotine style head bails

Head Restraint

Many crush designs incorporate some form of head restraint – this is particularly important if you need to undertake activities where the head needs to be restrained on large numbers of cows. Chemical restraint and a halter may well be an option in crushes where this facility is missing. If a halter is used, there must be a secure point to tie the halter.

Figure 3: Some examples of head restraint mechanisms

Blocking Gates

Blocking or baulk gates can be fitted to the front of head bails. They provide a length of up to 700 mm in front of the head bail. When used in conjunction with a backing bar, they allow animals to stand with their neck in a bail, without being able to withdraw their head, even when the bail is not closed firmly. This is particularly useful when it is necessary to work with the animals for a period of time during which movement restriction is important, and the risk of the animal laying down needs to be minimised. Latches on baulk gates need to be high-security, especially if movement can be achieved by big bulls. Blocking gates are particularly important in crushes with a walk through type head bail, where stock are likely to run through without being caught; for inexperienced operators; and in situations where the side gates are being used for drafting cattle into the side pens (and cattle must be pushed back into the crush before leaving the crush).

Controls

The control for the head bail can be either at the front of the crush with the bail, or at the back of the crush, or both. If a single operator is present, it is much more convenient to have controls at the back of the crush as this avoids the operator having to walk in front of the animal that is being loaded into the crush. It's best to choose a head bail system that can be released when under pressure. Some of the ratchet type mechanisms are difficult to release if an animal is putting strain on the gates. It's important that the controls do not pose a safety risk themselves in the form of an impact hazard. Common hazards include dual controls, where the unused control can strike someone; and controls that stick out or hang down which present a potential hazard if someone accidentally walks into them.

Recommendations

1. A Walk Through bail is preferred over a Guillotine style bail
2. Head Restraint facilities should be considered
3. Blocking Gates should be considered if the animal is ever to be forced backwards into the crush after being head bailed and where inexperienced operators may use the crush.
4. Controls that release the head bail when it is under pressure are recommended.

2. The Side Gates

The side gates of a crush allow for access to the sides of cattle for procedures such as vaccinating, surgery, treatment of front limbs, treatment or examination of the penis, semen collection etc. They may also be used for drafting animals in the crush into the side pens.

The side gate must close to within 20 mm of the floor or a lip of at least 40 mm must be provided to prevent animal's feet slipping laterally off the floor. Side gates should be sheeted or have close rails up to at least 1000 mm (more is better) above the floor to prevent animals being able to kick laterally through them.

Side gates in crushes should be vertical unless there is a specific requirement for a V crush. Narrow bases on crushes cause cattle discomfort, and they are more likely to cause cattle to lay down and become wedged in the crush.

Split Gates

Most modern crushes have gates that are split horizontally. This allows access to the top or the bottom of the cow whilst at the same time preventing the cow from moving its back end sideways out of the crush. The bottom gate can also serve to prevent operators being kicked.

When either the top or bottom gate is opened, the upper/lower level of the closed gate(s) should be approximately level with the stifle. This enables access for minor routine surgical procedures, whilst minimising the probability of being kicked. It reduces the possibility of the animal moving laterally under the top gate, though minimum specifications do not prevent it. When fractious animals ("bush" cattle) are being restrained, it is safer to have the bottom of the closed top gate at least 100 mm lower than the above recommendation.

Figure 4: Split Gates allow for safer handling

A mechanism should be incorporated that allows a rump bar to remain in place when either the top or bottom gate is opened. Options to achieve this include having a narrow intermediate gate and having smaller inset gates. This option enables much safer handling of bulls in particular, as they are very difficult to head bail, and need to be restrained forward of the "vet" gate for both scrotal and preputial procedures.

Facilities that suit cattle that are shorter, may not suit taller cattle. Age, gender and genotype may affect height and the common procedures to be used and class of animal involved should be considered in setting split gate levels (and other dimensions); eg, tropical cattle are significantly taller than Bos taurus cattle.

The latching mechanism on the vet gate lower level, needs to be able to be operated without the operator needing to lower their head when opening it.

Hinges

Side gates may open from the front, the back or both. If the crush is to be used for drafting cattle, having the hinges at the back is often more convenient, particularly on the side of the crush where the operator is standing. If the Crush is not used for drafting, it may be more convenient to have the side gates hinged from the front as the gates are less likely to be in the road during procedures that require access to cattle from the side. Also, being hinged at the front assists in preventing animals turning their heads and getting under the top side gate during any procedure with an open bottom side gate.

It's important when designing crush areas to make sure that side gates can open fully without being obstructed.

Removable Panels

Some crushes have removable panels within the side gates. These might be useful where specific procedures are being performed and where stock are particularly fractious.

Figure 5: Removable panels can avoid the need for swinging gates, yet still allow good access

Squeeze Crushes

Many crushes have a squeeze mechanism that allows cattle of varying widths to be restrained more efficiently. These can be very helpful where it is important that the animal be restrained without moving from side to side. Squeezing is also thought to have a calming effect on fractious stock, and will reduce bruising and the likelihood of cattle going down in the crush.

Adjustable inside width of side gates is highly desirable to enable safe restraint of animals and safe operation. The crush should be adjustable so the cattle being handled can easily pass through the crush, but have minimal room for movement once held in the crush. The ability to safely adjust width whilst the animal is in the crush is desired, especially if an animal needs to be medicated. The range of inside width can extend from 400 mm for calves to 750 mm for large and fat cattle.

Locking Mechanisms

Crushes tend to have either bolt mechanisms that are either manually controlled or "Slam Shut" (where they will automatically lock when the gate is shut, but must be manually opened). Slam Shut mechanisms are generally more convenient, but it is important to ensure that locking mechanisms are secure. If the crush is made of a light metal and can bend, or if the plate part of the mechanism bends over time the gate could spring open suddenly under pressure and cause injury. It's also important that the mechanism is placed as far back from the end of the gate as possible so if an operator opens the gate when it is under pressure, the operator is not at risk of injury from a fast moving side gate.

Figure 6: It is important that the gate locks are secure

Recommendations

1. Horizontally Split side gates are strongly recommended
2. Squeeze crushes are recommended in most situations
3. Consider the position of the hinges, and the types of locking mechanisms
4. Side gates must prevent animals kicking or escaping through them
5. Locking mechanisms must be secure and well maintained

3. The Vet Gate and Vet Area

The vet gate is a side gate behind the main side gates that allows access to the back of the cow from the side of the crush. Vet gates are essential where procedures such as rectal examinations, artificial inseminations, or obstetrics are to be carried out. The vet gate serves to protect the operator from being kicked or crushed by the animal should it escape from the head bail, and it allows easy access and escape if necessary. Continual climbing over a fence represents an increased risk of injury. The vet access area should have enough room for safe operation, ie, 700-750 mm in length, and closer to 750 if possible. Like side gates, vet gates should be split horizontally, and should be secured so there is no risk of the operator being struck by a fast moving gate.

The height of kick gates (the bottom part of the split gate) is critical in prevention of injury mainly to those conducting reproductive procedures. Unfortunately, many kick gates are too low. The height of the kick gate must be measured in relation to the floor on which animals stand in the crush. Ideal height should be: Average "hip" height of mature cows multiplied by 0.57; eg, if cows are 1400 mm (typical Brahmans aged 5+ years), then the gate should be 800 mm. Provide adjustable height if possible. Two ways height may be adjusted in hinged vet gates if possible within the design of the crush are bolting on an extension, or having interchangeable gates

The bottom of the vet gate should not be between 20 and 200 mm above the floor cleats to prevent feet getting caught under the gate.

The top of vet gate must be straight and horizontal. Cut-outs provided by some manufacturers to access scrotums are not recommended.

The balance of the gate should be even or biased towards swinging open. This ensures the gate does not accidentally drift inwards during entry of an animal. As part of this, gate hinges need to be strong and not wear, and the vertical support for the gate needs to be very rigid and not flex under normal operation.

For gates that use a spring-loaded bolting mechanism:

- Gates should be able to be kicked closed. Using a hand to close a vet gate is extremely dangerous.
- Mechanism to prevent the opened gate crashing past the outside of the crush if kicked back.
- Mechanism to prevent the gate latch passing the bolt seat when closing the gate.
- Ensure the bolt seat is aligned with a spring-loaded bolt under a range of conditions including when a cow is sitting on the vet gate and distorting the crush.
- Non-slip foot grip on the latching side of the vet gate at about 500 mm (not at floor height).
- Gate not able to be kicked into the lock-open position, ie, it can be left in a position so it can be kick closed.
- Locking and latching mechanisms close to the top of the gate. This allows safe unlocking.

The latch must not have any rearward projecting pieces of steel in it's design that can penetrate into one's leg/knee if the gate is kicked whilst being closed.

Figure 7: The vet gate allows for safe easy access behind the cow.

The hinging of the vet gate should be engineered to prevent accidental catching and damage to leads on equipment used at that end of the animal, eg, electroejaculator leads, ultrasound probe leads. The hinging must be locked so the gate cannot elevate or drop during use, except as required if design allows.

The gate above the vet gate can be used as an alternative for examination of the lower half of cattle, eg, for scrotal examinations. Therefore, specifications to enable safe use need to match those on the usual low vet gate.

4. The Back Gate and Race

The back gate serves to prevent cattle from reversing out of the crush when not caught in the head bail, and to prevent an operator in the "Vet Gate" area from being struck by a cow in the race behind. Many setups where large numbers of cattle are processed have a second backing (and even third) gate in the long forcing race so that there is always a space and then a gate between the operator and the next cow behind. If there is no such space, it is important that the back gate be secure and sturdy (so that a cow behind cannot open or break it) as well as being solid (so that a foot or horn from the cow behind cannot protrude through it) and of sufficient height that an animal cannot attempt to jump over it and kick the operator from behind. It is important that the back gate be well maintained such that it is easy to operate, closes fully, and can be secured in a closed position.

Recommendations

1. All crushes should have a "vet area" with a secure horizontally split vet gate
2. All crushes should have a high solid secure backing gate
3. If there is no such backing gate, the race behind an operator in the vet gate area must be empty of cattle.

5. Forcing Area

The size and design of the forcing area and length of the race will depend on the number and type of animals to be loaded into the crush. This is a part of yard design generally and is beyond the scope of this document. Humans should not enter a small forcing yard with stock.

6. The Floor

The floor of the crush should be level, non-slip, and designed to allow for easy cleaning and drainage. When cattle slip in a crush, they can not only damage themselves, but can damage operators nearby. For example, an operator performing a rectal examination is at risk of being pulled down, and also at risk of a kick type injury from fast moving legs. Further risk is associated with trying to right an animal that has fallen.

Bars welded to the floor of the crush to give cattle foot grip should not be in the arc of the closing vet gate nor immediately in front of the vet gate. If the animal has its foot between a bar and the kick gate, it cannot be pushed forward without getting it to lift its leg. The sides of the floor should be built up to at least 40 mm to prevent animals feet slipping past the plane of the side gates.

7. The Roof

A roof is recommended where repeated exposure to either sun or rain is likely. Appropriate lighting should be in place. A roof is also important to reduce rusting and weather damage to the crush. Roofs over crushes should extend laterally to at least 50% further than the height of the roof to provide adequate protection from rain and sun under most conditions.

8. The Surrounding Area

The surrounding area should be free of slipping/tripping hazards, and should allow all gates on the crush to be fully opened without obstruction. Crush exit design should allow cattle to exit the crush without coming into contact with the operator's work area. Cattle will flow much better through a crush if they are moving toward a lighter area than a darker area, and if they can see for some distance beyond the front of the crush.

If cattle are to be drafted into a yard on the same side of the crush as the operator(s), the operators working area must be separated from the cattle to reduce the risk of cattle damaging operators or equipment.

9. Other Features

Rump Bar

Many crushes have a back "rump bar" system where a pipe is inserted behind the animal, and a ratchet system is used to push the animal forward. It is recommend that crushes have a ratchet on the upper split gate also for dealing with the under carriage of a bull, or the udder of a cow. With the bottom gate open, the bottom ratchet does not work. Rump bars need a mechanism to prevent lateral movement and disengagement from the crush when the animal moves from side to side.

Spay Gates

Removable panels within the split gates can be useful in certain circumstances. This removes the need to have a swinging open gate, and provides more protection for the operator from fractious cattle.

Figure 8: Removable panels within the split gates

Hoof Trimming Kits

Hoof Trimming Kits are available for some crushes, and can be useful where foot trimming is undertaken regularly.

Figure 9: Hoof trimming kit ready to attach to crush.

Figure 10: Hoof trimming kit in action.

10. Recommended Standards when designing a Crush

Recommendations Checklist

The following are some minimum recommended standards:

- ☑ **Races:** length minimum, 6m, allows 2 cows to stand comfortably in it.
- ☑ **Dimensions of races:** 700mm wide for adult cattle. Not wider due to animals hurting themselves when they enter the crush , banging hips etc, cows pushing past each other in wide race and turning around.
- ☑ **Race design; race entrance design:** Straight one side leading into race, not angled from both sides, 45-60 degrees entry angle from other side. Gate at back of race to prevent animals backing out, preferably sliding.
- ☑ **All Crushes should have a vet area with a split vet gate and a solid backing gate. The Vet area should be at least 700-750mm long.**
- ☑ **Kick gate height** must be measured in relation to the floor on which animals stand in the crush. Ideal height should be: Average "hip" height of mature cows * 0.57; eg, if cows are 1400 mm (typical Brahmans aged 5+ years), then the gate should be 800 mm. The bottom of the kick gate should not be between 20 and 200 mm above the floor cleats to prevent feet getting caught under the gate.
- ☑ **Height of crush**, 1.9m from the floor of the crush (not the surrounding area).
- ☑ **Length of crush section** between head bail and kick gate, 2.5m
- ☑ **Back gate** must be solid (so that horns and feet cannot penetrate it), secure, and 1.9m high from the floor of the race behind the gate.
- ☑ **Floor** must be solid and non-slip
- ☑ **Crush width** 700mm inside. Adjustable width (400-700mm) highly recommended.
- ☑ **Side Gates:** Split gates either side highly recommended. Rump bar on both upper and lower gates highly recommended. A lower side gate height of not more than 40% of the "hip" height of cattle regularly examined; eg, ~600 mm for mature Brahman cows with 1400 mm "hip" height. Upper side gate should not open to leave less than 70% of the hip height of cattle being examined, Side gates may be split, ie have a front and back end. And gates may be set within side gates for access to animals either forward or back. Side gate must close to within 20 mm of the floor or a lip of at least 40 mm must be provided to prevent animal's feet slipping laterally off the floor.
- ☑ **Source:** Licensed fabricators should always be used. It is imperative that welds are safe.
- ☑ **Surrounds:** Crushes should have roofs or other protection from UV and weather. Surrounding areas should be free from tripping/slipping hazards; electrically safe; hygienic (access to water)
- ☑ **Maintenance: Crushes should be well maintained, and all hinges and latches inspected and/ or tested before every use.**

Common Uses for Crushes

This section describes common uses for crushes, and key considerations.

A score of 5 means that this is critical if this activity is ever to be carried out in the crush. A score of 4 means that it is very important and should be included if the activity is carried out regularly in the crush.

Activity	Walk Through Bail	Split Side Gates	Vet Gate	Solid Back Gate	Other features
Administering injections	5	4			
Artificial breeding	4		5	5	
Body composition scan					
Branding		5	5	5	Spey Gate
Bull Soundness Examinations	5	5	5		
Castration			5	5	
Checking dentition	5				Head Restraint
Clinical Examination of sick cows	4	5	5	5	
Dehorning	5				Head Restraint
Calvings - surgical and non-surgical	4	5	5	5	
Ear implants	4				Head Restraint
Ear tagging	4				Head Restraint
Eye Cancer diagnosis/treatment	4				Head Restraint
Faecal sampling	4		5	5	
Female reproductive tract examination	4		5	5	
Height measurement	4		5	5	
Hoof care - treatment and prevention	4	5	5	5	
ID scan	4				
Jugular or tail bleeding	4		5	5	
Rumen implants	4	5			
Spaying	4	5	5	5	Spey gate
Treatment of sick cows (abdominal surgeries, fluids, stomach tubing etc)	4	5	5	5	
Vaccinations / other injections	4	5			
Weighing	4				
Drafting	4	5			

Safety Assessment of the Crush and Surrounding Area

Important Risks

The crush can be a dangerous place – it is important to identify and manage safety risks before commencing work. This table lists some of the common risks that should be assessed and managed.

Source of risk	Examples of risk	Level of risk	Example management of risk
Crush facility	A large fractious bull is loaded into a light crush that is not bolted down and the crush falls over on the operator	Severe injury or death	An assessment that the crush is suitable and strong enough for the cattle to be loaded must be made.
Crush maintenance	A latch releases under pressure when an animal is struggling in the crush and a gate swings open rapidly and hits an operator	Severe injury	An assessment of the latches and locking mechanisms of the crush must be made. Doubtful latches should be re-enforced with rope.
Crush surrounds	Operators concentrating on the animal in the crush may trip over obstacles in the surrounding area or suffer trauma from projections at head height	Moderate injury	Remove as many objects and hazards as possible, and ensure that all people present are aware of any remaining hazards
	Electrocution - Water comes into contact with electricity	Serious injury or death	RCD devices are essential if electricity is used near the crush
Crush environment	Excessive UV exposure, dust, or moisture present a health risk	Serious health risk	Ensure sunscreen or other protection is used as appropriate; delay procedure
	Inadequate lighting or slippery conditions increase risk of accident	Severe injury	Manage as appropriate
	Working in isolation	Severe injury	If working without assistance, communications and emergency procedures (eg: call base every 30 mins) are required
Sudden unplanned movement from animal in the crush causes crushing / trauma	An operator standing behind the animal is crushed when the animal escapes from the head bale and moves backwards	Severe injury or death	Vet Gates open so as to provide escape route Use a suitable barrier between the animal and the operator – typically a rump bar or bottom part of the split vet gate
	An operator's arm is crushed between an animal and a part of the crush (for example an operator reaches through the bars on the side of the crush to inject an animal and the animal jumps, crushing the operator's arm)	Severe injury	Gates should be opened so as not to put the operator at risk
	An operator's arm is crushed by a gate or bar when the cow goes down while a rectal examination is being performed	Severe injury	The height of the bar or gate should be assessed to minimize this risk.
Sudden unplanned movement from the cow in the crush causes kicking injury	An operator standing behind an animal is kicked	Severe injury	A split vet gate will help manage this risk. The bottom half of the vet gate should be solid.
	An operator examining a front leg is kicked by the rear leg	Severe injury	It may be important to have sufficient personnel and a vet gate and so that a tail jack can be applied. Sedation may also be considered.
	An operator performing abdominal surgery (such as an LDA) is kicked with the hind leg	Severe injury	Split side gates will help manage this risk
Crushing injury/ trauma from the animal that has just left the crush	An animal is drafted into the same yard as the operator, and it attacks the operator	Severe injury or death	An assessment of animals temperament, suitable yard size, or a separate enclosed area for the operator is needed.
Musculoskeletal injury	An operator is at risk of repetitive strain injury from tasks that require straining and repetition	Severe injury	Warm up exercises, modification of the crush to minimize climbing over fences

Figure 11: This Crush has no vet gate. Pregnancy diagnosis here is very slow!

Figure 12: This crush is a similar design, but far more efficient. the difference in cost was $600.

Figure 13 (above): This crush would be better attached to the yards.

Figure 14 (below): This crush is often used for bulls. Extra posts were installed in front of the crush to tie halters in order to restrain bulls heads. The race behind the crush cannot be used when the vet area is in use because the back gate is not solid

Figure 15: A Hydraulic Crush

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Crush Risk Assessment

Farm:	Date:
Veterinarian:	Stock Breed:
Stock Type (circle) : Bulls Cows Steers Calves	Estimated weight (kg):
Stock Temperament (circle): Trained to lead Calm Nervous Unhandled Aggressive	

This document is designed as an aid to assist veterinarians in making a risk assessment of the crush and surrounding area when it is about to be used for a veterinary procedure. A (re-created) table from farmsafe.com.au is provided below which considers the potential consequences and and the likelihood of occurrence to determine if the level of risk is low, moderate, high or extreme. The table on the right indicates the action that should be taken once the level of risk is identified.

CONSEQUENCES How severely could it hurt someone	LIKELIHOOD –of exposure to a hazard causing injury given the frequency of exposure and consequence				
	ALMOST CERTAIN	LIKELY	POSSIBLE	UNLIKELY	RARE
CATASTROPHIC >Death, permanent disability	Extreme	Extreme	Extreme	Extreme	High
MAJOR >Serious bodily injury	Extreme	Extreme	Extreme	High	High
MODERATE >Medical Treatment	Extreme	High	High	Moderate	Moderate
MINOR >First aid only	High	High	Moderate	Low	Low
INSIGNIFICANT >No injuries	High	Moderate	Low	Low	Low

OK or Not Applicable	NO FORESEEABLE RISK OK for now. Review is any equipment/people/ materials/work methods or procedures change. Or this particular inspection item is NOT APPLICABLE to this workplace
EXTREME (ACT NOW)	EXTREME RISK—ACT NOW (Do something to manage these risks immediately. Stop the task until the hazard is controlled and the risk managed
HIGH (ASAP)	HIGH RISK– ACT AS SOON AS POSSIBLE. Do something to manage risks assessed as soon as possible. Consult with Management.
MODERATE (PLAN)	MODERATE RISK—PLAN to manage these risks/note any suggestions as to how might be managed. Consult with Management or Supervisor.
LOW (REVIEW)	LOW RISK—OK for now, Review if any equipment/people/materials/work methods or procedures change. Consult with supervisor

Risk Assessment:

Identified Risk	Level of risk (tick)					Comments / Actions required
	N/A	Low	Mod.	High	Extreme	
General Crush						
Crush is not strong enough to hold stock						
Crush not fixed – risk of tipping/moving						
Crush maintenance – latches not secure						
Crush Maintenance – head bale not secure						
Race - Stock can be safely loaded into crush						
Head bale – stock may escape form head bale						
Injury to operator from head bale controls						
Front - injury from head of stock						
Side - crushing injury between stock and bars of crush						
Side – crushing injury from stock escaping crush						
Side – kicking injury						
Behind – crushing injury from stock moving backewards						
Behind – Kicking injury from stock in front						
Behind – Crushing / traumatic injury from stock in race behind						
Surrounds – risk of tripping						
Surrounds – risk of electrocution						
MSDs – risk of musculoskeletal disorders						

General Crush Comments:

Suitability	N/A	Excellent	Adequate	Inefficient	Unsafe	Comments
Suitability for class of animal						
Suitability for job being performed						
Head Bale						
Side Gates						
Vet Gate						
Back Gate						
Forcing area						
Floor / roof						
Surrounding area						