

OBSERVATIONS ON HOW WEASAND CLIPS AND RINGS ENTER PETFOOD

N.G. Gregory. SARDI, PO Box 1571, Flaxley, SA 5153, Australia

Background

Petfood manufacturers have been experiencing problems with weasand clips and rings contaminating their final products. One company in Australasia receives approximately 13 customer complaints a month about weasand clips, and up to 3 complaints about rubber rings a month. In a recent incident, a cat that had eaten some contaminated petfood, had part of a weasand clip lodged in its oesophagus and it had to be removed surgically.

Objective

Determine how weasand clips and rubber rings enter petfood products, and provide recommendations, based on practical experience, on how to control this problem.

Methods

The procedures used in processing offal for petfood were inspected at 6 slaughterlines. There were one venison, one pig, two lamb/sheep and two beef lines. The procedures were examined for likely routes through which the weasand clips or rubber rings could end up in the bin of products due to be sent for petfood. In addition, the procedures used in processing red offal were discussed with slaughterfloor managers and operators with a view to establishing how the clips and rings could be entering the petfood bins. The focus was on rodding, evisceration, viscera sorting, transfer of the red offal from the slaughterfloor to the petfood room, sorting the petfood in the petfood room, and slaughterfloor cleaning operations.

Results and Discussion

The findings are divided into two categories: situations where there was a high risk of weasand clips and rubber rings entering the petfood bin, and situations where there was a theoretical and low risk of those contaminants entering the petfood bin.

1. High risk situations

Rubber rings were entering the petfood outlet on a regular basis at one of the lamb lines. At one period, 12% of the red offal had a ring attached to the connective tissue between the lungs. Those rings were not usually visible to the eye. Instead they were identified from the absence of a ring on the corresponding weasand, and confirmed by palpating the ring in the red offal. Several trials were conducted to determine how those rings were detached from the weasands but remained with the lungs. None of those trials were totally conclusive, but they indicated that the problem may have been linked to a particular person doing the rodding. At this line, the rodders were alternated every 15 minutes. In addition, it was thought that incomplete rodding, and late release of the ring from the rodding tool, were critical components causing rings to become detached from the weasand during paunch removal. Clips were found to be contaminating petfood on a regular basis at one of the beef plants. At that line, separate clips were used to seal the weasand and the duodenum. The operator who sealed the duodenum, was in the habit of taking three clips at a time and placing them either at a single point on the viscera conveyor or distributing them on the conveyor alongside separate sets of viscera. He would then take a clip from the conveyor for securing the duodenum, when dealing with each set of viscera. In this situation, a clip was prone to getting buried by the viscera. When that happened, the operator would take another clip either from the conveyor or from the main supply. In this way, an unused clip would go down the line unattached to the viscera, and be pushed, along with the red offal, from the conveyor into the petfood chute by an operator who was equipped with a long-handled alloy pusher. The operator in the petfood room below identified and removed unused clips from the red offal on a regular basis, but on occasion a clip would pass un-noticed; viz. on one occasion he had found a clip later in the day on the surface of a full bin.

2. Low risk situations

Venison: The relevant procedures where plastics were attached to the carcass during deer processing were bagging the pizzle, bagging and securing the bung with a cable tie, and securing a small-sized (lamb) weasand clip at rodding. Sometimes the weasand was too big for the loop of the rodding tool. In addition, with some weasands the lamb clip was too small to secure the weasand conveniently. Those problems occurred with Wapiti and large Red Deer stags. They could cause the weasand to be stripped if the loop of the rodding tool did not properly encompass the weasand, or they could result in failure to free the weasand on one side of the neck. In which case, the weasand could break when the paunch was dropped at evisceration. The broken end of the weasand held the clip and it would end up in the red offal tray of the viscera trolley. It would subsequently be removed by hand as the specified offal was selected and lifted into the petfood chute. The chance of a broken weasand, with a clip attached, ending up in the petfood bin was very remote.

If the weasand clip was secured to the weasand at some distance from the paunch, it could theoretically create a risk. In that situation the clip could snag on the skirt as the paunch was dropped during evisceration, and this may cause the weasand to break. The broken section of the weasand would end up in the red offal tray of the viscera trolley, but here again it should be removed when the specified offal was transferred to the petfood chute. It was only when there was a combination of human error at weasand attachment and at offal sorting that a clip could pass on to petfood. That combination was unlikely.

Occasionally, unused weasand clips were recovered from the blood storage tank. This indicated that clips that were dropped at the rodding station, left the plant via the blood collection route, rather than being hosed through the slaughterhall towards the petfood chute and bins. The risk of a dropped weasand clip entering the petfood bin during the cleaning-up period was virtually zero.

Pigs: Clips and rubber rings are not normally used on pig viscera. However, at one line clips were used routinely for sealing off the stomach from the duodenum after viscera withdrawal. At this particular plant the gastro-intestinal tract was used for human consumption. In addition, in sucker pigs, a clip was placed between the rectum and the colon. In both situations it was difficult to envisage how a clip could be transferred to petfood offal (red offal). If a clip landed on the floor it would be hosed down the drain or picked up and discarded. None of the hosed water on the floor could enter the raised entrance of the petfood chute.

Lamb and sheep: One of the lamb/sheep lines was using rubber rings for securing the weasand, and the other was using plastic clips. The following commentary describes some ways in which securing the clip or ring can go wrong and so lead to a clip or ring entering the petfood supply.

The risk of a weasand clip lying loose in the neck or chest of the carcass before evisceration would be greatest if/when the weasand breaks. Predisposing factors for breaking the weasand were thought to be:

- damage to the weasand near to the rumen during Y-cutting
- damage to the weasand in the head end of the neck, by the air knife used for freeing the neck skin

In the former situation the Y-cutters should tell the rodder when a weasand was damaged, and the clip could then be secured in a part of the weasand which avoided a potential break.

If a clip with a section of weasand broke away from the viscera, it would normally end up in the gut tray and it would go for rendering. In this situation there is also an increased risk of spillage of digesta, in which case all the offal would be condemned and sent for rendering, and none would be sent for petfood. This means that the risk of a section of broken weasand with a clip ending up in the petfood bin is low.

If, during rodding, the clip was not pushed up the weasand, and instead it was left near to the cut end of the weasand, there was a greater risk that it would tear off the weasand. The clip may be prone to breaking away with part of the weasand when it is drawn with the offal into the breast and out through the abdominal cavity. If the clip was rodded too far up the weasand, such that it was fastened at the entrance of the rumen, the operators who lift the paunch out of the cavity will be prone to nicking the knuckles of their hands on the clips. The optimum position for securing the clip to the weasand once the weasand has been released during rodding, is just inside the breast and 7 to 10 cm from the paunch (as measured on a weasand laid out on a flat surface).

Normally the supply of weasand clips and rubber rings is situated some distance from the chute leading to the petfood bins. If the weasand clip container was spilt onto the floor, the clips would normally be thrown away. In some situations they may be left on the floor and hosed down the drain. In which case, there is a remote risk that the clips will end up near to the petfood chute which may be used as a quick but improper disposal route. This risk could be avoided by moving the petfood bins (in the floor below) away from the chute before each cleaning-up period starts (in the floor above). This should prevent unspecified material and wash-water entering the petfood outlet.

Beef: When rubber rings are used, they should be positioned as far up the weasand, towards the paunch, as possible. If the weasand is incompletely rodded, there is a risk that the rubber ring will run off the weasand as it is pulled through the skirt when the paunch is dropped. Normally the operator performs the following actions after freeing the hindgut. An arm is placed around the rumen and the weasand is grasped and pulled through the skirt so that either the whole of the weasand is drawn into the abdominal cavity and rests on the skirt, or that part of the weasand that holds the rubber ring is lifted from the chest into the abdominal cavity. This procedure is done specifically to avoid the ring from running off the weasand as it is pulled through the skirt. It sometimes happens that when a new recruit is learning how to rod cattle, the whole of the weasand is not freed in the neck. In that situation the ring could run off the weasand in the manner described above, and there will then be a loose ring in the eviscerating area.

Another situation that could lead to a rubber ring becoming detached from the weasand is when an animal with unusually large amount of gut contents is not fasted before slaughter. When a set of heavy guts is dropped from the carcass, it sometimes happens that liquid digesta shoots into the weasand from the rumen. The weasand acts like a blind-ended hose and the pressure forces the ring along the weasand. In exceptional circumstances the ring could be forced off the weasand.

Where trolleys are used to convey offal from the eviscerator to the chutes, it is essential that there is clear separation of the green and red offal. The red offal should not be tipped into the petfood chute. Instead it should be lifted by hand and dropped into the chute. This helps to eliminate the risk of a loose ring in the bottom of the trolley being tipped down the chute.

In beef plants, rubber rings are more likely to become detached from the weasand than from the bung. Rubber rings are attached to the bung using a mechanical ring spreader. This usually works well, but if for some reason a ring is not properly in position, it has to be pulled down the rectum by hand. This correcting procedure has been known to cause the rings to break. The broken ring could fall into the abdominal cavity, in which case it would presumably be taken out with the green offal and should not pose a risk to the petfood industry.

At some meatworks, the neck and the green plus red offal are condemned as a matter of routine if the eviscerator or meat inspector notices that there is no ring attached to the weasand. From the petfood manufacturer's perspective, this is good practice as it reduces the risk of a stray ring associated with the red offal from entering the petfood bin. It would be very unusual for either the eviscerator or the meat inspector to miss noticing the absence of a ring on a beef weasand.

At some meatworks, the oesophagus is stripped for human consumption. A knife is run along the length of the weasand to open the muscle layer without puncturing the inner mucosal layer. The muscle layer is then pulled and cut off, leaving the white inner layer connected to the paunch. A stub of muscular layer needs to be left behind to allow attachment of the ring or clip. In this situation there would be a greater risk of a rubber ring running off the weasand, and a clip should be used instead.

Conclusions

This study showed that faulty practice was the main cause of clips and rings entering products destined for the petfood market. Faulty practice occurred at two out of the six slaughterlines. Faulty rodding was the main cause of rubber rings ending up in petfood containing lambs' lungs, and inappropriate practices leading to stray clips was the main cause of beef weasand clips entering the petfood bins. The problems could be controlled by ensuring that:

- all staff are briefed on the impact of allowing contaminants to enter the petfood bin
- there is close surveillance of staff learning how to rod carcasses. That surveillance should include inspection of the weasand at evisceration for absence of a ring or clip. The actions of the trainee should be corrected accordingly.
- clips and rings are removed individually from their box, pot, pouch or stack and are not be distributed loose at the workplace
- rodding frees the entire weasand. The clip or ring is attached so that there is little chance of it being detached. The paunch is released and dropped from the carcass in a manner which minimises the risk of the clip or ring being detached from the weasand
- product is not tipped into the petfood chute. Instead, it must be transferred by lifting it manually. This will help to reduce the risk of transferring loose rings or clips to the petfood bin
- cleaning staff are briefed as to which product goes into which chute.