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Claw Abrasives in Layer Cages - A Review

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Abstract: A review was undertaken to obtain information on the range of claw abrasives which could be used in layer cages to keep claws of hens blunt. In Europe a council directive has been issued which requires that all layer cages be fitted with suitable claw shortening devices. Research in Europe on claw abrasives suggest that abrasives reduce claw length of hens, improves feather cover, lowers mortality and reduces the incidence of scratches and entrapment injuries. More recent trials in Australia showed that claw abrasives could result in mortality in hens from prolapse and cannibalism. A low-cost, non-invasive method by which the claws of caged layers can be kept short and blunt can be achieved by fitting 8 mm strips of abrasive tape on the egg guard. Bird's claws scrape against this tape while they are feeding. In Australia studies have shown that abrasive paint was more effective and more durable as a claw shortener than abrasive strips. The birds using the abrasive paint had the shortest claw length and lowest claw sharpness. Other work in Europe has shown that strips of sand fixed on the egg baffle with resin had a significant abrasive effect on the nails but by the end of the laying period large parts of the strip had been worn down. Claw shorteners have also been produced during cage manufacture by pressing a tread to make a perforated baffle. One of the most durable claw abrasives is a metal plate with abrasive iron filings. Other durable abrasives such as stone are also being tested for suitability as a claw abrasive.

Key Words: Laying hens, claw abrasives, declawing, mortality, production, bird condition

Introduction

One of the criticisms of keeping birds in cages is the excessive length that claws can reach by the end of the laying period. This has been recognised in the European Union with the European Communities Council Directive (1999/74/EC) which states that "cages shall be fitted with suitable claw shortening devices" (chapter II, article 5, provision 6). Media vision showing the long claws on caged birds and the difficulty long clawed birds have in walking when placed in floor pens has increased the public's poor perception of keeping birds in cages.

Pullet claws: During the pullet stage the claws can get quite sharp and handlers need to wear protective gloves, long trousers, long sleeved shirts or overalls to avoid lacerations. For example when caged reared birds are being retrimmed or vaccinated at about 10-12 weeks of age, the claws can be a dangerous weapon especially when the birds flap and attempt to escape while being handled. It is not uncommon for handlers to receive lacerations on exposed skin caused by the sharp claws. In recent years the commercial breeding companies have selected against birds with both long claws and sharp claws (B Verrall, Hy-Line Australia Pty. Ltd., personal communication). Nevertheless the claws still grow to about 3 cms and despite many birds being reared on the floor, claws can still get quite sharp and will inflict injury on other birds and handlers.

Layer claws: When birds are placed in layers cages at 18-20 weeks the middle claw length of current strains of birds reared on the floor are about 18 mm and by end of lay in cages can measure more than 30 mm. During the laying period the claws of birds can cause abrasions on other birds especially during periods of disturbance. For example when birds are being fed it is likely that birds will clamour over each other in an attempt to get to the feed trough causing abrasion to other birds especially if the claws are sharp. Likewise there is potential for injury to birds from claws during other periods of disturbance. For instance birds can get flighty while; i) eggs are being collected, ii) during routine cleaning and maintenance in the shed, iii) when the egg belt and manure belt are being run, iv) when unfamiliar staff enter the shed, and v) when loud noises or unusual events occur in the shed. During some of these disturbances birds attempt to escape from the cage and can cause considerable injuries to other birds and to themselves. It is not uncommon for the claw of a bird to get caught on its own wing. Furthermore, even fairly short claws will still get sharp and may also be a potential source of injury to other birds (Hill, 1975; Ruszler and Quisenberry, 1979; Fickenwirth, *et al.*, 1985).

Injuries from claws: When birds are injured by claws there is the potential for cannibalism to develop, especially if there are bloodstains on birds, broken skin, raw wounds and injured vents. In these circumstances, forceful pecking will lead to pecking at the abrasion (Savory, 1995), attracting other birds to join in the pecking. Death of the pecked bird usually results. In addition, if the wound does occur around the lower abdominal region where the skin is very thin (Glatz and Lunam, 1996) death of the bird from pecking occurs rapidly. Picking of the abdominal region several inches below the vent is the severest form of cannibalism. After birds have tasted blood they will continue their cannibalistic habits without provocation. Cannibalistic pecking is responsible for at least 80% of all vent pick-out cases (Smith, 1982) and often results from poor beak-trimming with the offender usually being a cage mate or a bird in an adjacent cage that has been improperly beak-trimmed. When light intensity is kept at 5 lux or lower, which is achievable under European cage layer house conditions, the potential for cannibalism developing is probably quite low because birds cannot see the wound.

Trapped birds: Long claws also cause accidents if the claws of birds get caught in the various parts of the cage. In recent times cage design has improved with cage manufacturers eliminating most of the problem areas especially in the corner of cages and around the feed trough where claws and other parts of the body can be trapped. While most birds can eventually free themselves others may be trapped for some time (Tauson, 1985). During this period other birds will peck and clamour over the bird and can cause injury with the claws leading to cannibalism. Other birds may be trapped for extended periods and die.

Declawing: The claws are one of the most effective defensive structures, causing stress and altering behaviour patterns in other birds of the flock (Ruszler and Quisenberry, 1979). The claws of most bird species are used as weapons to inflict injury on competitors and used to maintain status in the social hierarchy. In some strains of layers declawing has been carried out by removing the distal phalangeal joint of the front toes with a red-hot blade

(Compton *et al.*, 1981). In day old chickens the distal phalangeal joint can also be amputated with a sharp pair of scissors angled to retain the ventral aspect of the distal phalanx within the footpad. Declawing has been reported to reduce hysteria in birds and increase production (Hansen, 1969; Ruszler and Kiker, 1975; Hansen, 1976, Ruszler and Quisenberry, 1979; Compton *et al.*, 1981; Gildersleeve *et al.*, 1981; Martin *et al.*, 1981; Vanskike and Adams, 1983 and Goodling *et al.*, 1984). However, it was reported by Compton, *et al.* (1981) that declawing decreased the support of the foot on the wire, leading to inferior foot condition. In emus, Lunam and Glatz (2000) found that declawed emus were flat-footed and had an altered gait. Declawing can potentially result in long term pain. Zimmerman (1986) reports that chronic pain in most species can modify specific walking behaviours, including social behaviour. Chronic pain is observed in orthopaedic disease and in some cases following peripheral injury (Gentle, 1997). Tissue and bone damage resulting from declawing could result in persistent pain with birds undertaking protective guarding behaviour and other pain coping behaviours. Neuromas have been reported in the toes of domestic fowl after declawing (Gentle and Hunter, 1988). A study by Lunam *et al.* (1996) showed that the histology of the emu toe is similar to the domestic fowl (Lucas and Stettenheim, 1972) and the resorption of neuromas in the toe observed in the emu is also likely to occur in poultry. Thus the neuromas in the toe observed by Gentle and Hunter (1988) soon after declawing in poultry may have resorbed if examined later, thus reducing any welfare problems associated with declawing.

In heavy breeds of poultry with arthritic complaints loss of locomotor function is common (Thorp, 1994). Animals with this condition are unwilling to stand or walk and there is evidence of one legged standing, limping and sitting as the bird attempts to cope with the pain. In less painful arthritic conditions animals are observed to change their posture more frequently.

Gentle (1997) suggests that chronic pain can result in pain guarding behaviours and declawing might be expected to modify walking behaviour. Studies by Lunam and Glatz (2000), however showed that despite emus becoming flatfooted, there was no behavioural evidence to indicate loss of locomotor ability of declawed emus or to suggest declawed emus were suffering from severe chronic pain because most of the neuromas had resolved by 28 weeks of age. In addition declawed emus engaged in significantly more bouts and time of searching, less stereotype pacing and pecking indicating the declawed birds were under less stress and not as frustrated as control birds which were more aggressive (Glatz, 2001). The behavioural and neurological evidence for emus indicate that declawing does not compromise locomotor ability of emus, despite the altered gait, and has the benefit of improving the social structure in the groups by reducing stereotype behaviour and aggression. For egg layers there have been no comprehensive anatomical or behavioural studies undertaken to assess the effects of declawing. The preliminary studies on declawing with emus and the recent findings on beak trimming and re-trimming of birds by Glatz, *et al.* (1998) suggests that declawing layers does not result in the degree of chronic pain originally thought. Declawing in poultry might have more welfare benefits than disadvantages and be an alternative strategy in flocks prone to injury from claw abrasives.

Abrasives and claw length: Hens in cages are not able to wear down their claws as effectively as free-range birds or birds kept in other non-cage systems. Floor layers spend a great deal of their time foraging for food. This behaviour involves persistent scratching of the litter or soil looking for edible items such as insects, seeds, grain or vegetative material. The scratching behaviour wears down the claws and keeps them blunt. In cages, however, the claw length of the middle toe can reach over 4 cm (Hill, 1975; Tauson, 1977; Fickenwirth *et al.*, 1985) and in some strains the claws can become long, twisted, cracked and with a pronounced curl.

A low-cost, non-invasive method by which the claws of caged layers can be kept short and blunt can be achieved by fitting 8 mm strips of abrasive tape on the egg guard. Bird's claws scrape against this tape while they are feeding. This reduces the effectiveness of the claws to cause injury and feather loss (Tauson, 1986) and reduces the risk of entrapment. Tauson (1986) conducted three experiments with the abrasive tape. Birds using this tape had significantly shorter claws than the control hens throughout the laying period. The length of claws of the middle digits of birds using the tape did not exceed the length of claws in pullets or in birds kept on litter floors. A considerable number of the control hens had broken front claws or claws that were very long and often twisted. In each of the three experiments conducted by Tauson, (1986) claw length of White Leghorn birds provided the abrasive tape was less than 20 mm by 35 weeks of age. Tauson (1986) reported the birds using the tape were easier to handle when taken out of the cages and when being handled at end of lay to transport to the abattoirs for slaughter. The durability and adhesive properties of the tape were found to be acceptable over the 3 experiments. Elson (2001) tested identical strips in the UK and found the abrasives strips were effective, but some did not last and became detached from the baffle plate and had to be replaced.

Wienken (personal communication), Technical Department, Big Dutchman International, Germany has indicated that stick on sandpaper strips have a lifetime of about 2 years in their cage systems. The effectiveness of the tape at reducing claw length is dependent on the activity of the birds at the feed trough and the area of the tape fitted to the egg baffle. Tauson (1986) reports that birds which are fed with a chain feeder are normally more active and there will be more wear observed on the tape. The hens used the tape quite intensively by scratching with their feet on the egg guard while feeding.

In Australia there have been a number of experiments conducted using abrasive tape in layer cages. Murphy (unpublished) indicated that abrasive strips were effective in reducing claw length. Stewart and Dingle (1997) reported an average middle claw length of 23.7 mm for 2 strains (68 weeks-of-age) using abrasive tape compared to 27.3 mm for the controls. Stewart and Dingle (1997) found that the abrasive tape was more effective at reducing claw length in the Harrison cage than in the Salmet cage or the Edinburgh cage. They indicate that the angle and size of the egg baffle plays an important role in claw length reduction in the various cage types when abrasives are used and recommend the use of abrasive tapes in all cages fitted with baffles. Glatz (2002) reported a 7.8 mm and 5.9 mm reduction in middle claw length using the abrasive strips in two experiments; which was greater than the 3.6 mm reduction achieved in the Queensland studies using a 12.5 mm wide abrasive strip (Stewart and Dingle, 1997). There was a greater abrasive area in trial reported by Glatz (2002) for the birds to abrade the claws than provided by Stewart and Dingle (1997).

However, in Europe, Rauch (1992) and Tauson (1986) achieved a two fold reduction in claw length (15 mm) using the same area of abrasive tape that was used by Glatz (2002). There are a number of reasons why the reduction in claw length achieved was greater in the European work. First, the abrasive tape used in the Australian work might not have had the same abrasive properties of the European product despite both having the same brand name; second; the European birds might be more active at the feed trough and utilised the tape more frequently; third the claws of the Australian birds might be harder.

Abrasives and foot condition: Tauson (1986) found birds using the tape had no deterioration in foot condition except in one batch of birds at 52 weeks of age. Glatz (2002) found that the birds were not abrading their footpad on the abrasives. Instead the lesions were probably caused by hyperkeratosis, a condition on the footpads and digits caused when birds stand on wire. Studies by Lunam and Glatz (2000) have shown that declawing in emus alters the weight distribution in the feet when birds are standing.

It is likely that this is the case in caged birds with shortened claws. There could be more pressure placed on the pad areas of birds causing a decline in foot condition as was observed in declawed layers by Compton *et al.* (1981). Rauch (personal communication) and Van Niekerk (personal communication) did not observe any decline in the foot condition of birds using the abrasive tape.

Abrasives and production: In one experiment Tauson (1986) showed that egg mass per hen housed was significantly higher in birds using cages fitted with abrasive tape and there was a tendency for fewer dirty eggs. Other reports are equivocal on the influence of abrasives on egg production (Ruszler and Kiker, 1975; Ruszler and Quisenberry, 1979; Martin *et al.*, 1981 and Goodling *et al.*, 1984).

Abrasives and egg quality: Abrasives have not been found to effect egg quality (Tauson, 1986; Ruszler and Quisenberry, 1979 and Compton *et al.*, 1981) although Elson (1978) claims sharp toenails may cause shell damage especially in sagging cages where egg roll out is poor. Van Niekerk and Reuvekamp (2000) indicated there was a tendency for fewer cracked eggs from hens utilising a Patchett abrasive strip. One observation made by a third year veterinary student who kept the records on a Yorkshire farm using the Patchett device was that in hole shell damage was much reduced. Total cracks were 5 % with the claw shortener and 6.5 % without the claw shortener (Elson, personal communication).

Abrasives and plumage condition: Tauson (1986) and Glatz (2002) found that abrasive strips did not improve the plumage condition while Compton *et al.* (1981) and Vanskike and Adams (1983) found there was no difference in the feather cover between normal and declawed hens. In particular, there was no significant differences found in plumage condition of the back of the hens, which would have been expected if the incidence of trampling was high.

It might be expected that the feather cover of the back of hens might be improved with use of claw abrasives. The reduced claw length would have minimised the impact of the claws on the feathers during trampling as reported by Hill (1975) and Fickenwirth *et al.*, (1985). It was noted by Glatz (2002) that the feather cover of the tail of hens using an abrasive paint was superior to the control hens. The tail feathers are often pecked at extensively by other birds in the cage, and could be classified as stereotype pecking behaviour. While the evidence is not convincing, it might be suggested that birds with the shortest claws were less stressed and engaged in reduced stereotype pecking resulting in better feather cover on the tail (Glatz, 2002).

Abrasives and mortality: Overseas results indicate that abrasive strips either reduce mortality (Ruszler and Kiker, 1975; Ruszler and Quisenberry, 1979; Martin *et al.*, 1981; Goodling *et al.*, 1984) or mortality is not improved by use of abrasive strips (Tauson, 1986). However Elson (2001), suggests if the area of the abrasive material is too large, then skin irritation can occur which may in turn lead to injurious pecking. Likewise Van Niekerk and Reuvekamp (2000) observed mortality from wounds and leg problems for birds utilising a Patchett strip but it was too low to be significant.

Glatz (2002) showed that cannibalism and mortality increased in one experiment when abrasives were used, but in a second experiment the same response could not be repeated although two birds utilising the abrasive strip died from cannibalism in the second experiment. The major difference between European and the Australian conditions is the light intensity to which the birds are exposed. Under European conditions light intensity is usually 5 lux or less while light intensity reported by Glatz (2002) ranged from 90-110 lux during egg collection, feeding and bird inspections and 10-20 lux for the remainder of the time. The increase in light intensity probably resulted in an increase in bird pecking activity, providing a possible explanation for the increase in cannibalism and prolapse noted by Glatz (2002). The difference in results reported by Glatz (2002) may indicate a strain susceptibility to mortality from cannibalism associated with abrasive strips or be related to density of housing. Stocking density in one experiment was 545 cm^2/bird while in second experiment stocking density was 680 cm^2/bird.

In an attempt to explain the increase in mortality Glatz (2002) hypothesised that when birds are frightened or are competing for a position at the feed trough they abrade their vent region on the strips. Any injury or scratch would attract other birds to peck at the lesion. Once a death occurs in a cage from cannibalism other deaths of birds in the cage normally follow (Glatz, 2000). This situation was apparent in one experiment where there were a number of cages where multiple deaths occurred in cages with the abrasive strip and abrasive paint (Glatz, 2002). It would only take one lesion or an abrasion on a bird to occur to initiate cannibalistic attacks by birds in the same cage. The reduced stocking density in the second experiment may have reduced the susceptibility of birds to abrading their vent on the claw abrasives.

In the Ratite Industries maintenance of hide quality is crucial and every effort is made by farmers to minimise any object in the environment that can cause abrasions. Damage to the hide can occur especially when the bird rubs against these objects when it is stressed or frightened. It seems logical that including an abrasive object in a cage for laying hens must greatly increase the risk of the bird suffering from an abrasion. Both Glatz (2002) and Van Niekerk and Reuvekamp (2000) observed faeces on the abrasives in the cages. It could be argued that the location of abrasives in the cage would have made it difficult for a bird to abrade itself, but faeces were noticed on the strips and the paint indicating the vent was in close proximity. No scratches were observed on live birds in both experiments conducted by Glatz (2002) possibly because those birds that did receive an abrasion were pecked and died. There may be a need to use less abrasive tapes or paint under Australian conditions. Furthermore, there needs to be an assessment of whether minor abrasions received by birds from other parts of the cage structure are contributing to the problem of cannibalism.

The other concern noted by Glatz (2002) was the inconsistent beak length and beak condition of the birds used in the experiment. It is likely that the birds needing retrimming were the birds responsible for the cannibalism observed. By chance at housing there might have been a disproportionate number of birds with long beaks placed in these cages fitted with abrasives, relative to the control cages.

Another factor worth considering as an explanation for the increase in mortality in reported by Glatz (2002) is that blunting of the claws removes one of the defensive weapons of birds. Those birds with a longer and sharper beak might be able to exert even greater dominance over other birds in the cage with shorter beaks. The claws are used as weapons to inflict injury on competitors, maintain status in the social hierarchy and can alter the behavioural patterns in other birds of the flock (Ruszler and Quisenberry, 1979). In support of this Glatz (2001) reported that declawed emus were under less stress and not as frustrated as non declawed birds which were more aggressive. Declawing in emus improves the social structure in the flock by reducing stereotype behaviour and aggression. By removing the claw as a defensive weapon by use of claw shorteners in poultry may further increase the importance of the beak in dominance interactions, perhaps explaining the increase of cannibalism in birds with access to abrasive strips.

Fitting abrasive tape: Tauson (1986) reports that abrasive tape (3M-'Safety Walk, General Purpose Black') is easily cut into different sizes and fitted in both new and old cages. In contrast Glatz (2002) reported it was much easier and it took less time to apply abrasive paint to the egg guard compared to sticking the abrasive strips to the egg guard. There was more time involved in cutting the 3 strips from the 25-mm roll, then cutting these strips

into appropriate lengths, removing the backing of the tape (which can be a time consuming exercise) and then sticking the tape onto the egg guard. It was simpler and quicker to apply the pre-prepared paint and sand mixture onto the egg guard with a spatula. Later on when the abrasive paint wears off it would also take less time to apply a second coat of paint compared to scraping the used abrasive tapes from the egg guard and sticking on the new tape.

If the cage has not got a deflector, it is suggested a similar effect on claw length could be achieved by attaching the strip on the back of the feed trough. However in the Victorsson enriched furnished cage which has an almost vertical baffle plate the abrasive tape is virtually ineffective because it did not follow the recommendation of Tauson (Elson, personal communication). For heavier breeds (medium brown hybrids) which have shorter claws than lighter White Leghorn hybrids, Tauson (1986) recommends fewer strips of abrasive tape be fitted to avoid bleeding of the claws at the zone of ossification.

However, there are sometimes complaints from producers who find that the strips fall off and wear out. The material needs regular checks and has to be renewed after 2-3 years. Tauson (personal communication) indicates that the reasons for the complaints from some farmers but not others may be because the abrasive material used is not correct and may be a cheap replicate with poor self-adhesive glue. Alternatively the strips were not properly stuck to the egg baffle plate because it was not cleaned to remove fat, feed residues or dried saliva. In new cages an oil film often protects the sheet metal and this protective layer must be cleaned with an appropriate solvent (e.g. acetone) to ensure that the abrasive tape can be effectively secured to the sheet metal. Van Niekerk and van Reuvekamp (2000) suggests the only place to fit the abrasive is on the egg baffle, where the feed trough is located outside the cage. Elson (2001) recommends claw shorteners should be applied well up the baffle plate near the feed trough extending for most of the width of the cage. Elson (2001) suggests that if the area of the abrasive material is too large, then skin irritation can occur which may in turn lead to injurious pecking. In enriched cages, where some feeders are located in the cage, the abrasive could be fitted to the feeder. The effectiveness of this location is problematic (Van Niekerk and Reuvekamp, 2000). Another location is on the floor in the form of a grass mat with rubber fingers, but soiling of the strip is likely.

Abrasive paint: Tauson (1996) mentioned the use of abrasive paint as another method to improve the durability of the abrasive. Very fine sand is mixed in paint and the thick mixture is applied in a band on the egg baffle. Tauson (personal communication) had a discussion with Swedish egg producer who used abrasive paint as a claw shortener on his 15,000 bird-laying farm. The producer used a paint brand in Sweden known as "Technolac-Prime", code 168D46. This primer is normally used for preventing corrosion of equipment like the inside of manure auger tubes.

To produce the abrasive paint, the producer mixed 170 kg of very fine blasting sand (0.4-0.8 mm) with 40 litres of paint. The mixture was sufficient for 3300 cages. A 5-6 cm wide strip of paint was coated onto the deflector plate except for the inner 5 cm. The paint mixture is a very thick paste and was applied to the deflector using a spatula. The producer commented that the abrasive paint was still effective after three batches of birds. The cost of the paint in Sweden is 268 SEK/L.

The abrasive paint used by Glatz (2002) was far more effective as a claw shortener compared to abrasive strips reducing claw length by 17.8 mm in one experiment and 13.7 mm in the second experiment. This is probably because the area of abrasive paint provided in the experiment conducted by Glatz (2002) was far greater than provided by the abrasive strips. Applying the paint in similar strips as the tape might enable the bird to chip the paint off more easily. The reduction in claw length achieved with the abrasive paint, however, was the same reduction achieved by the abrasive strips in the European work (Glatz, 2002).

Abrasive baffle made at manufacture: Elson (personal communication) advised that claw shorteners have also been produced during cage manufacture by using the 'coining method' or pressing a 'tread' to make a perforated baffle . Van Niekerk and Reuvekamp (2000) used 2 perforated baffles, one with holes 3 mm in diameter and 2 mm spaces, the other with 5 mm holes. The 3 mm baffle did not provide sufficient abrasion to the nails. The 5 mm baffle gave significant wear of the nails, but only a few nails were abraded. The holes on the baffle soon lost their edge and effectiveness.

Glue and sand: In addition Van Niekerk and Reuvekamp (2000) tested an egg baffle with a strip of sand fixed on it with resin. The abrasive effect on the nails was significant but by the end of the laying period large parts of the strip had been worn down.

Metal plate with filings: Van Niekerk and Reuvekamp (2000) reported that a metal plate with abrasive iron filings produced by Patchett in the United Kingdom (UK) was an effective abrasive in cages. One Patchett strip (17.5 cm long and 2.5 cm wide) was found to be just as effective as having two strips in the cage and broken nails were significantly lower (0.6% vs 9.4%) than in cages with no strip. Mortality from wounds or leg problems was too low to find an effect. Van Niekerk and Reuvekamp (2000) reports the plate should last for at least 3 years. In the UK, Elson (2001) reports that a few egg producers have used the 8 mm wide '3M-safety walk' tape and others the Patchett tungsten carbide faced plate and found both to be effective in shortening claws but the Patchett device was more durable. The degree of shortening was much less with brown hens. One producer in the UK has used the device for 8 years. One observation made by a third year veterinary student who kept the records on a Yorkshire farm using the Patchett device was that inhole shell damage was much reduced. Total cracks were 5 % with the claw shortener and 6.5 % without the claw shortener (Elson, personal communication).

Stone: Stone is another abrasive being tested by Van Niekerk (personal communication). Results were not available at the time of writing this review.

Cost of abrasives: Elson (2001) stated the cheapest option are the self-adhesive abrasive strips, at about 6-7 pence/hen for materials plus the cost and time involved in cutting and fitting. Cage conversion specialists in the UK have been testing a compound with an abrasive surface, which can be applied directly to the baffle plate at 10 pence/hen. The Patchett strip is the most expensive option at over 20 pence/hen fitted. Glatz (2002) reported the cost to paint one cage with the abrasive was estimated at $0.31 AUD/cage or 6.2 cents/hen for a 5 bird cage and 7.8 cents/hen for a 4 bird cage.

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