Mulesing - what are the alternatives?

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Introduction

The blowfly is the most detrimental parasite affecting the Australian sheep and wool industry (Armstrong et al, 2005). The most practical and effective technique in controlling blowfly strike involves the practice of mulesing (AWI, 2005), which is one of the most sensitive welfare issues concerning the sheep industry today (Evans, 2004). The pain associated with mulesing is well documented and has been described as the "greatest acute stressor" of all lamb-marking procedures (Fell & Shutt, 1988). Over the next four years nearly seven million dollars will be spent on research into alternatives in an attempt to satisfy animal welfare organisation guidelines, improve wool quality and limit blowfly resistance to insecticides (AWI, 2005). With the recent news that two American retailers have boycotted Australian wool over sheep welfare issues (Fawcett, 2004), there are now more reasons than ever to stop the mulesing process.

Discussion

Computer software is currently being developed to predict flystrike (AWI, 2005). This would be invaluable for farmers for planning when to crutch or shear their sheep, and when to apply pesticides, as the environmental impact resulting from the inappropriate use of these chemicals is becoming increasingly commercially and socially unacceptable (AWI, 2005). This is because pesticide residue is released into the environment during wool processing as scour effluent or sludge (Jordan, 2005). The wool industry is therefore under pressure to reduce the level of chemical residues in wool by reducing the use of these chemicals on farms (Wilson & Armstrong, 2005). These pesticides include diflubenzuron (for example, Magnum®), and triflumuron (for example, Zapp®), which are Insect Growth Regulator (IGR) chemicals (AWI, 2005). IGRs are the most common class of fly control products used by farmers and must also be carefully managed to maximise their useful life by ensuring that blowflies do not develop resistance (AWI, 2005). This can be done by utilising the following management practices (Wilson & Armstrong, 2005):

- Monitoring weather conditions and blowfly populations, through trapping, to predict blowfly activity.
- Reducing blowfly populations through trapping.
- Treating and clipping individual flystruck sheep.
- Jetting/backlining susceptible sheep, such as weaners and hoggets, as a preventative measure when the blowfly season commences.
- Jetting of specific areas (pizzle of wethers, breech of ewes, poll of horned rams) if a flywave is expected.
- Controlling internal parasites.

Trapping blowflies using LuciTraps has proved very effective by virtue of the design (Wilson & Armstrong, 2005). The attractant works by mimicking fleece rot, animal carcasses, urine and faeces, and although blowflies cannot escape the trap once entered, other flies can (Armstrong et al, 2005).

The use of predatory fungi and microscopic worms as biological controls of blowflies are presently being investigated (AWI, 2005). Both can live in wool and kill blowfly larvae by smothering or attacking them (AWI, 2005). Also, genome mapping of the blowfly Lucilla cuprina is being undertaken to look for genetic weaknesses that can be exploited to control or kill it (AWI, 2005). However, the most viable non-surgical mulesing alternative currently being researched is a naturally occurring protein that gives the same results without pain or surgical intervention (Fawcett, 2004). Unfortunately this technique requires many injections to the breech area to gain the desired outcome (Fawcett, 2004). This becomes a welfare issue as

well as being labour intensive, so research is underway to devise an easier and quicker way to administer the protein (AWI, 2005).

Mulesing can protect against 90% of breech blowfly strikes but does not prevent poll or body strike (Wilson & Armstrong, 2005). Mulesing can even encourage flystrike (Scobie, 2004). Larval infestations reduce wool quality and quantity (Tellam & Bowles, 1996), which is especially evident in the Merino breed due to their wrinkly skin and dense wool, which allows the right environment for blowflies to breed. Research carried out in the 1920s showed that although wrinkled sheep produced more greasy wool than smooth-bodied sheep, the clean fleece yield is actually lower in wrinkled sheep (Scobie, 2004). Hence, breeding for smoother skin will not only reduce blowfly strike but also improve wool quality and yield (Scobie, 2004). Other disadvantages associated with wrinkled sheep include reduced conception, lambing and weaning percentages (Scobie, 2004). Thus, the ultimate alternative would be to breed sheep without the conformation that attracts blowflies. Polled sheep with short tails and no wool on their head, legs, belly and breech would be much less susceptible to flystrike (mulesed sheep are as likely to be flystruck as smooth-skinned sheep (Scobie, 2004)) and be an economic alternative for farmers concerned with pesticide use and animal welfare (Scobie et al, 1999). Sires with a genetic mutation that leave them bare-skinned in the crutch and inner hind leg areas are currently being studied, as they may hold the genetic link to sheep that do not require mulesing or crutching (AWI, 2005).

These research projects are still in experimental stages, so initially Integrated Pest Management (IPM) programs should be put into place. An IPM program takes into consideration economic, environmental and welfare concerns (Jordan, 2005) and utilises a combination of management and husbandry methods to manage stock efficiently in times of blowfly activity (Armstrong et al, 2005). These include the previously mentioned management methods plus the following practices (Jordan, 2005):

- Timing of shearing and crutching.
- Timing of lambing to follow either shearing or crutching.
- Mulesing all lambs and docking tails to the correct length.
- Quarantining introduced and returning sheep.
- Achieving complete musters.
- Regularly inspecting the flock.
- Recording all pesticide treatments.

Also, to help breed for blowfly resistance in a flock, farmers should purchase rams only from breeders who select against the conformation and fleece faults that attract blowflies, and cull sheep struck in seasons of low blowfly activity (Wilson & Armstrong, 2005). Adequate disease and worm control combined with good diet to prevent scours, and minimisation of stress can help maintain strong blowfly resistance (Jordan, 2005).

The Livestock Contractors Association has recognised the need for a national accreditation scheme for mulesing contractors (Hooper, 2004); this includes giving farmer awareness and training days (Jordan, 2005). The aims are to stamp out poor mulesing practices and show the concerned public that Australia is making a concerted effort to improve welfare standards within the industry (Evans, 2004). At the same time it will help the industry to maximise profit that would otherwise be lost through practices that devalue the sheep's carcass at time of slaughter due to skin and tissue damage (Hooper, 2004).

Conclusion

There are many strong reasons for stopping the mulesing practice in terms of welfare, financial loss and environmental impact. While many research projects in this area are ongoing, there are management and husbandry techniques that can be employed now to control blowflies without mulesing.

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