

12 June 2020

Case Management and Administration Unit  
Australian Pesticides and Veterinary Medicines Authority  
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By email: [enquiries@apvma.gov.au](mailto:enquiries@apvma.gov.au)

Dear Sir, Madam

**Proposed approval of zilpaterol hydrochloride and registration of the product Zilmax Medicated Premix**

Thank you for the opportunity to comment on the consultation on the proposed approval of zilpaterol hydrochloride and registration of the product Zilmax Medicated Premix.

RSPCA Australia does not support the approval of zilpaterol hydrochloride or the registration of products containing zilpaterol hydrochloride in Australia.

We note that zilpaterol hydrochloride is used to improve production but offers no health benefit to cattle. Indeed, feeding zilpaterol hydrochloride exposes cattle to an increased risk of poor animal health and welfare outcomes. RSPCA Australia believes that this renders the use of this product unacceptable.

Thank you for considering attached comments.

Kind regards



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**Proposed approval of zilpaterol hydrochloride  
and registration of the product Zilmax Medicated Premix**

**RSPCA Australia submission**

RSPCA Australia does not support the approval of zilpaterol hydrochloride or the registration of products containing zilpaterol hydrochloride in Australia. Zilpaterol hydrochloride is used to improve production but offers no health benefit to cattle. Indeed, feeding zilpaterol hydrochloride exposes cattle to an increased risk of poor animal health and welfare outcomes as outlined below.

**Heat stress**

Heat stress is a significant concern for feedlot cattle particularly during periods of high temperature and high humidity. Cattle fed excessive doses of zilpaterol have been observed to suffer from heat stress (Grandin 2010). Feedlot cattle fed zilpaterol hydrochloride were found to be at greater risk of death during warmer months, with incidence of death being 80-85% higher than in controls (Loneragan 2014). Hagenmeier (2017) found that 1.3% of cattle fed zilpaterol hydrochloride who had access to shade during periods of high heat and humidity exhibited open-mouthed breathing with the tongue exposed (a sign of severe heat stress) with this percentage increasing to 6% for cattle with no access to shade.

**Health**

Feedlot cattle fed zilpaterol hydrochloride were found 23-30% more likely to need treatment for illness particularly respiratory disease (Loneragan 2014).

**Lameness**

Beta-agonists are vasoconstrictors (constricting the blood vessels) and, as such, can increase the incidence of foot and leg disorders. Painful lameness and foot disorders have been associated with feeding high levels of beta-agonists including reports of feedlot cattle at a processing plant in the USA losing the outer shell of the hoof (Grandin 2010; Grandin 2018). Boyd (2015) found that mobility decreased as the period on zilpaterol hydrochloride in feed increased and cattle took longer to exit the cattle crush towards the end of the feeding period (the authors notes that transport and standing on concrete at the abattoir would exacerbate the decline in mobility). More recent research into cattle mobility shows evidence of joint damage in the knee and is thought to have several causes including feeding excessive levels of concentrates and cattle reaching heavier weights at a young age. Joint damage in cattle fed beta-agonists was found to be more severe than in cattle fed a natural diet (Grandin 2018).

**Behaviour**

Combined use of zilpaterol hydrochloride and other growth promotants found that cattle spent 31% more time lying on their sides (possibly due to increased weight gain and pressure on legs and hooves) and displayed more agonistic behaviour (pushing and bulling) than controls and other growth-promoting treatments (Stackhouse-Lawson 2015).

**Other animal welfare concerns**

Cattle fed zilpaterol hydrochloride were found to have greater respiration rates and panting scores than cattle fed a control diet (Boyd 2015; Hales 2014). The Zilmax product label reads “Animals receiving zilpaterol hydrochloride may exhibit increased respiratory rate as well as elevated levels of creatine phosphokinase (CPK) and creatinine.” CPK is an enzyme indicating the occurrence of muscle damage and elevated levels are an indicator of stress as well as a predictor of poor meat quality. Plasma creatinine increases with thermal challenge, e.g. hot weather, and cattle fed zilpaterol hydrochloride are at greater risk of heat stress as outlined

above. Meat from cattle fed zilpaterol hydrochloride was found to be more likely to be dark, firm and dry (an indicator of fatigue) compared to controls (Loneragan 2014).

### **Countries prohibiting use of zilpaterol hydrochloride**

In 2013, animal welfare concerns related to the feeding of zilpaterol hydrochloride led to Merck Animal Health removing the product from the United States market. In the European Union, Directive 96/22/EC prohibits the use of beta-agonists in cattle and bans the importation of meat and meat products from animals that have been treated with beta-agonists (EFSA 2016). A report published by Meat & Livestock Australia (MLA 2019) identifies the following countries as banning the use of zilpaterol hydrochloride or ractopamine (another beta-agonist) in cattle: Argentina, Chile, China, Egypt, EU (27 countries), India, Iran, Kenya, New Zealand, Russia, Taiwan, Turkey, Uruguay and Zimbabwe. Australia and the EU are currently in negotiations for a free trade agreement in which Australia will be required to meet expectations related to animal welfare in food production systems.

Japan imports half of Australia's total grainfed beef exports (i.e. from feedlot cattle); Korea is Australia's 2<sup>nd</sup> largest grainfed beef market; and China is the 3<sup>rd</sup> largest destination (after Japan and the US) for Australian beef with 30% of total Australian beef imports comprising of grainfed beef (MLA Market Snapshots: Beef & Sheep, August 2019). The EU is a small market for Australian beef, but it is high-value and 80% is grainfed beef (MLA Market Snapshot: Beef & Sheep, European Union, August 2019). Taiwan is another small market, largely consuming Australian grassfed beef, however beef consumption is expected to continue to grow offering further export opportunities (MLA Market Snapshot: Beef, Taiwan, January 2018).

As animal welfare is of increasing concern to consumers, both in Australia and overseas, the APVMA's approval of zilpaterol hydrochloride - a growth-promoting feed additive that has the potential to "increase mortality, heart rate, respiration rate and agonistic behaviour in cattle" (EFSA 2016) - is unlikely to engender trust in Australian beef which currently has the reputation of being clean, green and safe to eat.

### **References**

- Boyd BM, Shackelford SD, Hales KE et al (2015) Effects of shade and feeding zilpaterol hydrochloride to finishing steers on performance, carcass quality, heat stress, mobility, and body temperature. *Journal of Animal Science* 93:5801-5811.
- EFSA (European Food Safety Authority) (2016) Scientific report on the review of proposed MRLs, safety evaluation of products obtained from animals treated with zilpaterol and evaluation of the effects of zilpaterol on animal health and welfare. *EFSA Journal* 14(9), 4579, doi:10.2903/j.efsa.2016.4579.
- Grandin T (2010) Improving animal welfare: A practical approach. CAB International, Wallingford, UK.
- Grandin T (2018) Heat stress and lameness in fed feedlot cattle is detrimental to animal welfare. Available at <http://www.grandin.com/heat.stress.lameness.html>.
- Hagenmaier JA, Reinhardt CD, Bartle SJ et al (2017) Effect of shade on animal welfare, growth performance, and carcass characteristics in large pens of beef cattle fed a beta agonist in a commercial feedlot. *Journal of Animal Science* 94:5064-5076, doi:10.2527/jas2016-0935.
- Hales KE, Shackelford SD, Wells JE et al (2014) Effects of feeding dry-rolled corn-based diets with and without wet distillers grains with solubles and zilpaterol hydrochloride on performance, carcass characteristics, and heat stress in finishing beef steers. *Journal of Animal Science* 92(9):4023-4033.
- Loneragan GH, Thomson DU, Morgan Scott H (2014) Increased mortality in groups of cattle administered the B-adrenergic agonists ractopamine hydrochloride and zilpaterol hydrochloride. *PLoS ONE* 9(3), e91177, doi:10.1371/journal.pone.0091177.
- MLA (Meat & Livestock Australia) (2019) Meta-analysis of effects of zilpaterol and ractopamine in feedlot cattle. Final Report B.FLT.0234. Meat & Livestock Australia Limited, Sydney.
- Stackhouse-Lawson KR, Tucker CB, Calvo-Lorenzo MS et al (2015) Effects of growth-promoting technology on feedlot cattle behavior in the 21 days before slaughter. *Applied Animal Behaviour Science* 162:1-8.