



Comparative Study of the Minimum Inhibitory Concentration – MIC of Enradin® (Enramycin) vs. Avilamycin – against field strains of *Clostridium perfringens* between 2002 and 2005

Between 2002 and 2005, samples of broiler intestines were collected from farms of 12 integrators all over Japan (Hokkaido, North of Japan, Mid of Japan and Kyusyu) and sent to the Kyoto Dobutu Kensa Center (Kyoto Animal Clinical Center) to determine the Minimum Inhibitory Concentration – MIC for *Clostridium perfringens*.

The number of samples were:

2002: 140
 2003: 59
 2004: 103
 2005: 62

The feed additive program varied-some were using Enradin Feed Additive, others avilamycin and others were not using any product.

Key Points

- Enradin® Feed Additive showed during the whole study period a very strong and consistent activity against *Clostridium perfringens* – low MIC's, being always superior to avilamycin.
- MIC's for Enradin Feed Additive remained low during the whole study period, while the activity of avilamycin seemed to have deteriorated.
- The MIC's for avilamycin for samples from farms using avilamycin in the feed were very high, suggesting the development of bacterial resistance. In the same farms, MIC's for Enradin Feed Additive were very low, suggesting that there is no cross resistance among these drugs.

Figure 1. Enradin vs. Avilamcyin between 2002 and 2005

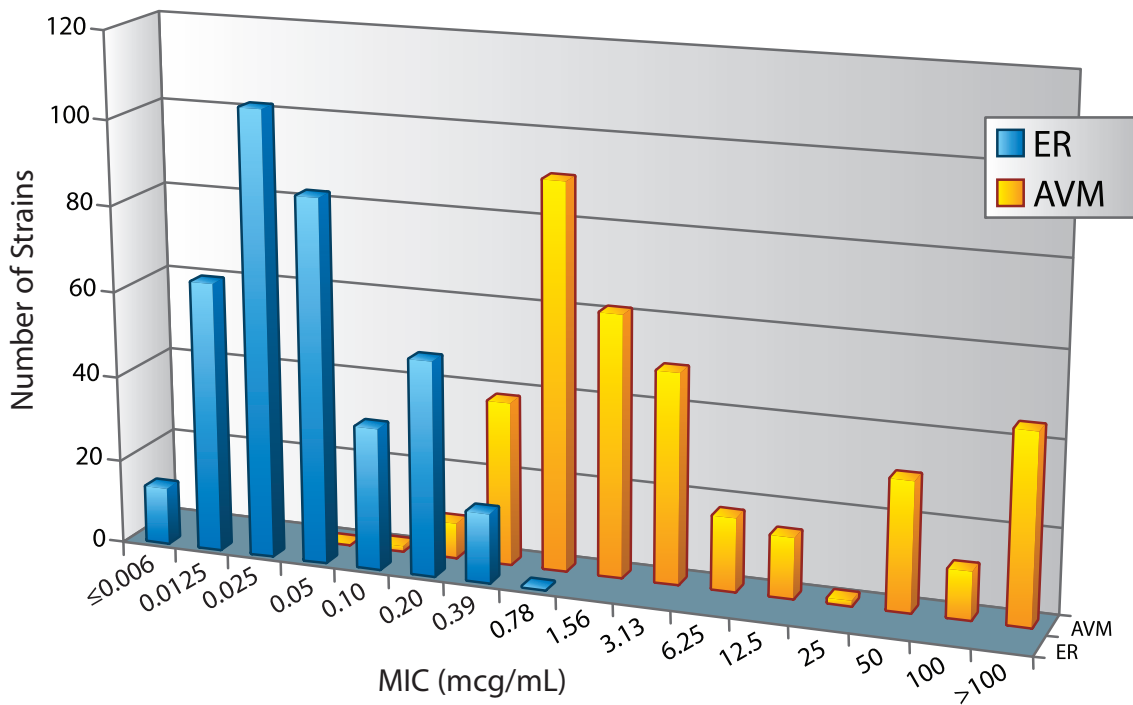


Figure 2. Enradin vs. Avilamcyin in 2005

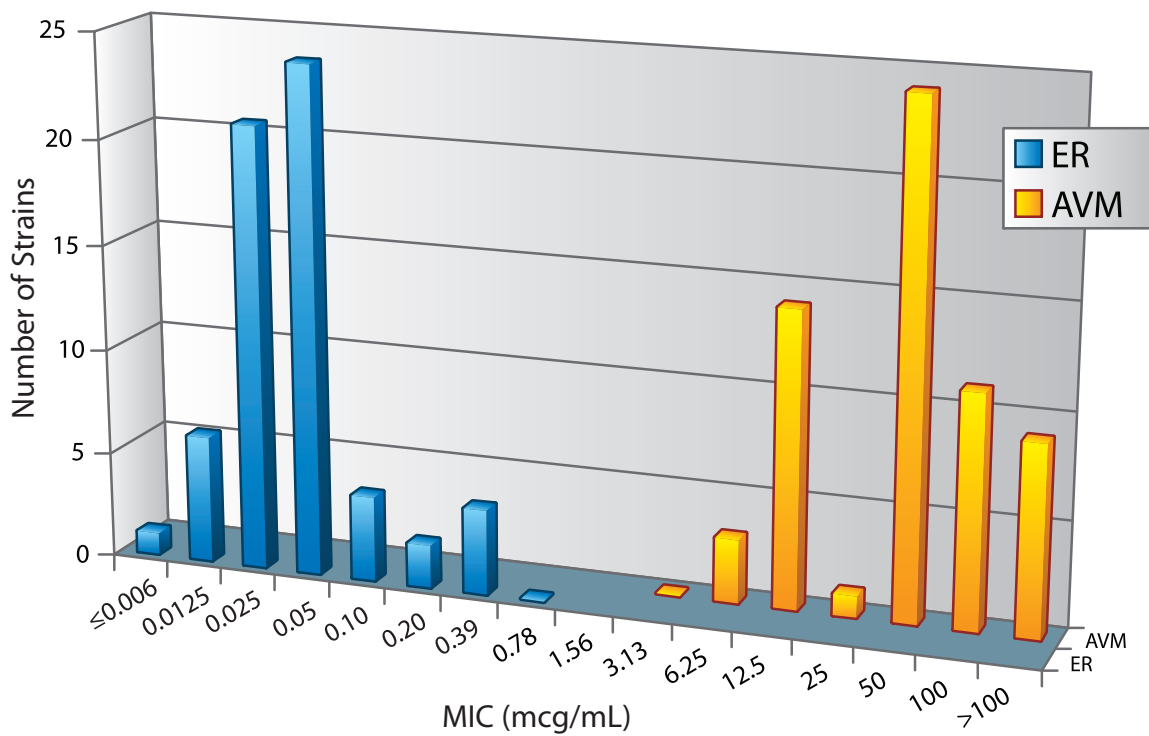


Figure 3. Enradin from 2002 to 2005

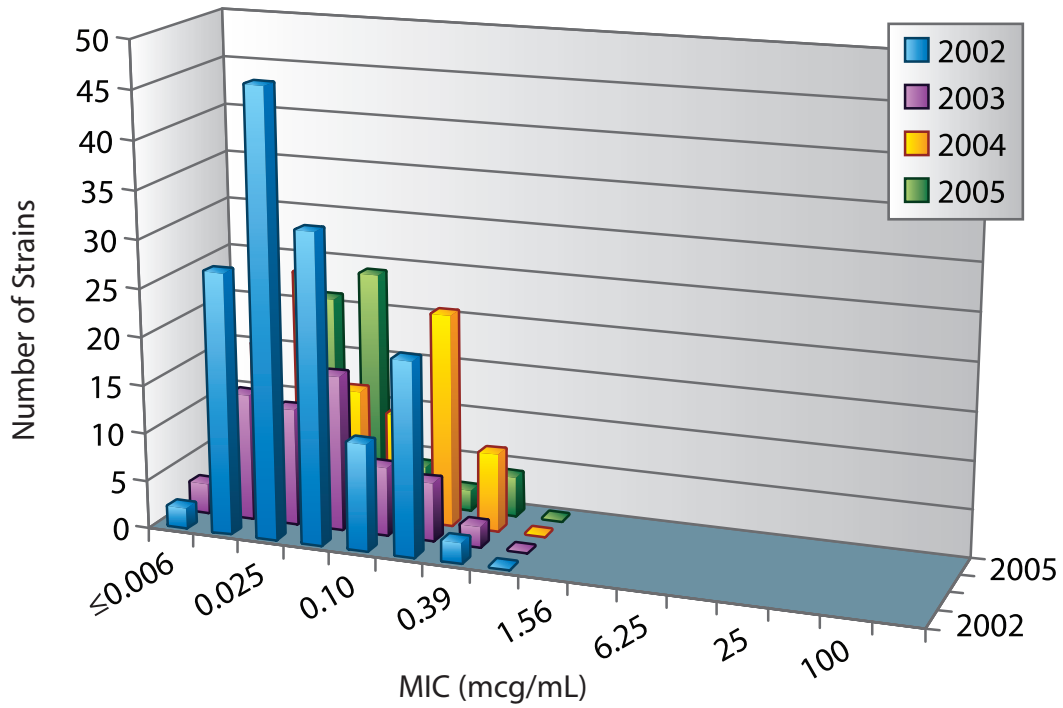


Figure 4. Avilamycin from 2002 to 2005

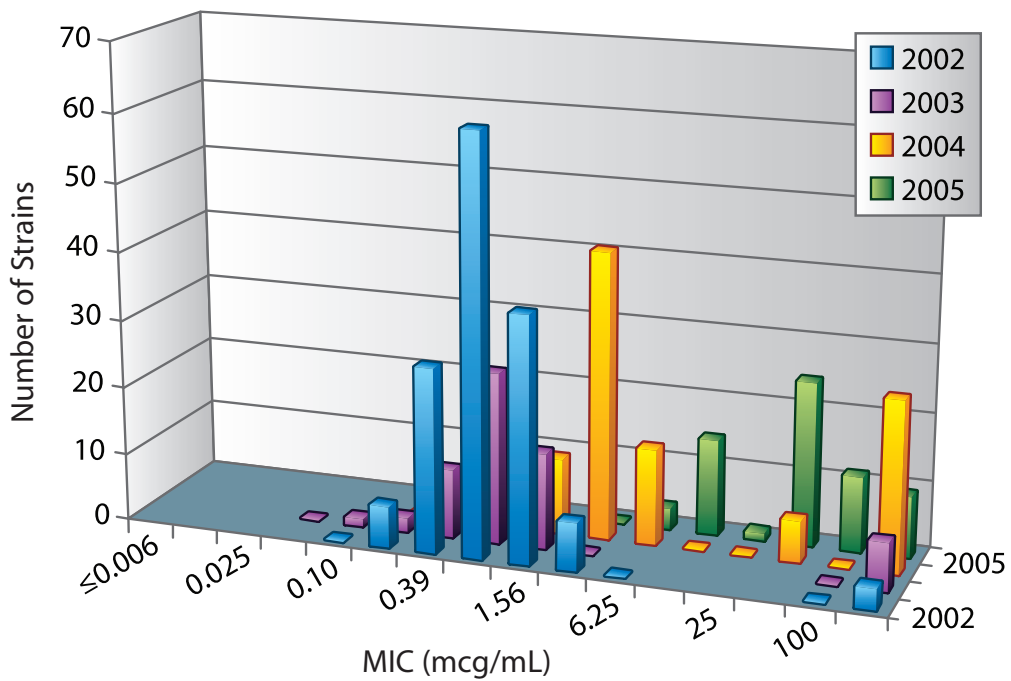
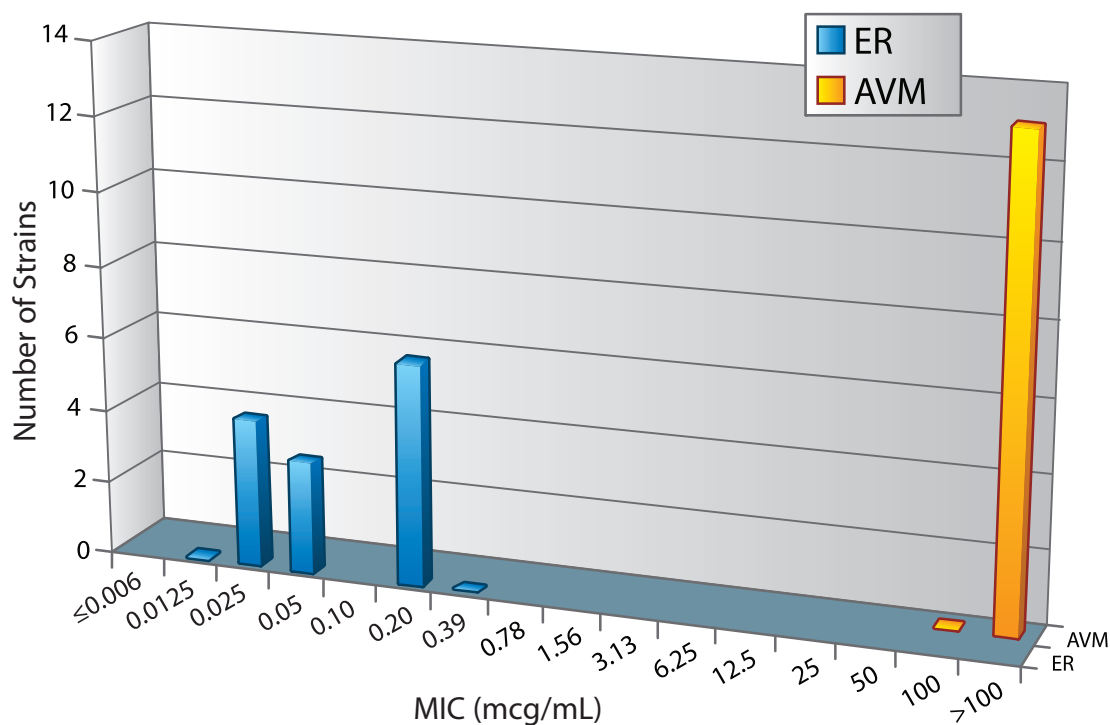


Figure 5. MIC comparison of *Clostridium perfringens* between Enramycin and Avilamycin in samples collected from farms using Avilamycin.



Results

- MIC results for Enradin® Feed Additive were consistently lower throughout the study period, with no changes in sensitivity. These results indicate that resistance to enramycin has not developed despite the high usage of the product in Japan – more than 30% market-share.
- Samples from farms using avilamycin showed very high MIC for avilamycin, indicating the development of resistance. In the same farms, MIC's for enramycin were very low (under 0.39 $\mu\text{g}/\text{ml}$), which makes Enradin Feed Additive the product of choice in rotation programs after avilamycin.

[Innovative Solutions in Poultry Health]



Enradin is a registered trademark of Schering-Plough Animal Health Corporation.

Copyright © 2006, Schering-Plough Animal Health Corporation. All rights reserved. SPAH-PBU-451