Introduction
Acute pneumatic (AP) is caused by Mycoplasma hyopneumoniae (Goddin, 1969; Ward & Reuther 1965). Clinical signs are normally seen in the fattening stage of production where affected pigs frequently cough, and in extreme cases deaths may result. Fever, the major effect of the disease, are to depressed growth rate (ADG) and feed conversion efficiency (FCR).

Tiamalin has been shown to be extremely effective in vitro against the causative organism M. hyopneumoniae (Goddin, 1973) and it was the purpose of this programme of trials to evaluate the efficacy of tiamalin when included in feed at 20 and 50 ppm in mitigating the effects of the disease.

Methods
Four trials were carried out in the United Kingdom, involving 446 pigs. Three farms were used, each with a history of severe AP problems, with between 50-70% of the pigs showing typical lung lesions when examined at slaughter. M. hyopneumoniae were demonstrated in lung preparations by Dr. P. Whittcombe of Cambridge University. There was no history of swine dysentery or atrophic rhinitis on these farms. The trials lasted for 6 weeks during the fattening stage of the pig's life i.e. between 50-70 kg liveweight. The pigs were weighed at the start of the trial and randomly allocated to their treatment groups on an equal number, sex and pen weight basis. They were weighed 4 weeks later (Part 1) and again after a further 4 weeks (Part 2). The amount of feed given to each pen was recorded. After the trial the pigs were slaughtered and their lungs examined and scored depending on the extent of the lesions.

Part 1: Two consecutive trials were carried out, each with 6 pens of 25 pigs, giving a total of 12 replicates of the 3 treatment groups. Each group was fed a standard ration which contained tiamalin (Dynamulin Feed Premix, B.H. Squibb & Sons Ltd) at a level of 20 or 50 ppm, and a non-medicated feed as a negative control. All feeds contained zinc bacitracin and copper as growth promoters.

Part 2: This trial involved 3 pens of 20 male pigs & 3 pens of 27 female pigs giving a further 3 replicates of the treatments examined which were tiamalin at 20 or 50 ppm against a negative control. All feeds contained tiamalin and copper as growth promoters.

Results
The results of the 3 trials carried out on Farms 1 & 2 are summarised in Tables 1 & 2.

<table>
<thead>
<tr>
<th>Part</th>
<th>Overall</th>
<th>Drug Level</th>
<th>FCR</th>
<th>Impt.</th>
<th>FCR</th>
<th>Impt.</th>
<th>FCR</th>
<th>Impt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>0 Negative</td>
<td></td>
<td>754</td>
<td></td>
<td>704</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>0 Tiamalin</td>
<td>827*</td>
<td>613</td>
<td>705</td>
<td>622*</td>
<td>704</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>30 Tiamalin</td>
<td>795</td>
<td>622*</td>
<td>704</td>
<td>622*</td>
<td>724</td>
<td></td>
</tr>
</tbody>
</table>

* P = 0.05

Discussion
The results of these studies show that tiamalin, when included in feed at 50 ppm, significantly improved the weight gains and F.C.R. of pigs affected with pneumatic pneumonia. It therefore helped to reduce the deleterious effects of the disease by maintaining growth performance. These improvements were over and above those achieved by the growth promoters such as copper, zinc bacitracin & tylosin, standardly included in the diets, and at a stage in the fattening period when expected performance benefits from such additives are usually small.

In the same level of 50 ppm, tiamalin has also been proven to be effective in preventing swine dysentery [Taylor, 1985].

Tiamalin at 20 ppm gave significant improvements in weight gains & F.C.R. in the first part of the trials but did not, in the second when the level of pneumonia had increased. It must be remembered that the former had severe pneumonia problems with between 80-90% of the pigs affected with the disease.

Neither level of tiamalin appeared to reduce the incidence of enzootic pneumonia lesions.

Summary
Four field trials carried out in the UK, involving 446 pigs demonstrated that tiamalin at 50 ppm in the feed, significantly improved the weight gains & F.C.R. of pigs by 6.4% and 6.5% respectively when they were severely affected with pneumatic pneumonia, (80-90% incidence).

References