



Milk Replacer Research Milk immunoglobulin (IgG) and fatty acid sources

The use of immunoglobulins (IgG) from porcine and bovine plasma in feeds for young pigs became common several years ago. Their use in milk replacers has not been common because the research has been inconclusive. We have not seen a response to feeding bovine plasma via the MR in our calf research nursery. In most calf trials, plasma and serum protein have been fed to supply 4 to 4.5 g of IgG, a smaller dose per unit body weight than in young pigs. In this trial, we evaluated a cow's milk IgG source fed via the MR to provide 6 g of IgG per calf daily. Over the last few years we have observed consistent responses of increased calf gains (Figure 1) and reduced scouring (Figure 2) when adding a combination of medium chain fatty acids and polyunsaturated fatty acids PUFA (C18:2, C18:3) to calf MR. In the US and the world, it is not common to add this fatty acid combination to MR. We have also observed improvement in calf gain when this fatty acid combination was added to whole milk (Figure 3). In the current trial, we also evaluated the addition of these specific fatty acids again. Calves were fed 1 lb of MR powder diluted into 1 gallon of water daily until day 42 (6 weeks). Starter and water was fed free-choice daily until day 56 (8 weeks). Starter and MR contained decoquinate. The 4 MR treatments in the current trial were:

MR Treatment	Added fatty acids	Added milk IgG
1	NO	NO
2	YES	NO
3	NO	YES
4	YES	YES

Daily gain, pre- and post-weaning, was improved by the addition of fatty acids and milk IgG. Over 8 weeks, the response to fatty acids was 10% and the response to milk IgG was 7%, and the response to the combination was additive (20%; Figure 4). Starter intake tended to be improved by both the addition of fatty acids and milk IgG. Hip width change over 8 weeks was improved by the addition of fatty acids. Abnormal fecal score days (scour days) were reduced by the addition of fatty acids (Figure 5). The addition of milk IgG tended to reduce scouring, and the combination of both fatty acids and milk IgG provided the largest reduction of scouring vs. the MR with neither fatty acids nor milk IgG (Figure 5).

The effect on gain of added milk IgG was smaller than that of adding fatty acids. The combination of fatty acids and milk IgG was additive (synergistic) for improving gain and reducing scours. Feeding specific fatty acids has yielded repeatable results (Figure 6).

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