The Use of Spray Dried Eggs as an Ingredient in Diets for Infantile Pigs and Broilers

B. G. Harmon, M. A. Latour, and S. Norberg
Department of Animal Sciences, Purdue University

Approximately 2% of all chicken eggs are rejected through the candling process and deemed inedible for humans. Instead of discarding them as has been done in the past, this high energy, high protein product is being salvaged and evaluated as a source of nutrients for infantile pigs and chickens.

The eggs are processed using the same shell removal equipment used to produce liquid pasteurized eggs. In addition, the eggs are liquidized and put through the same spray dry equipment used in whey processing by the cheese industry. The products are heated in the process to a temperature of 140 degrees F for a period of 4.5 to 5 minutes in a pasteurizing process.

The composition of spray-dried eggs on an as fed basis is as follows:

Dry Matter	%	93	Lysine	%	3.72
Protein	%	46	Methionine/Cystine	%	2.79
Fat	%	28	Threonine	%	2.23
Ash	%	5.7	Isoleucine	%	2.60
Calcium	%	.36	Valine	%	3.21
Phosphorus	%	.76	Leucine	%	4.43
Potassium	%	.61	Arginine	%	3.08
Magnesium	%	.08	Histidine	%	1.23
Iron	%	.12	Tryptophan	%	.70

Research was recently completed at Purdue University in which the metabolizable energy value was determined to be 4700 kcal/kg (as fed basis) for pigs and chickens. In perspective, spray dried eggs has 37% more energy than does corn.

Eggs are considered an excellent source of immune globulins and typically reported to contain about 150 mg of gamma globulin per egg. Studies are being conduced to determine the extra value that can be attributed to the feed ingredient because of the extra-nutritional value of the immune globulins.

In segregated early weaning programs (pigs weaned at 14 to 18 days of age), spray dried eggs are being evaluated in comparison to porcine plasma protein which also is a rich source of immune globulins. In partial and complete replacement of plasma protein, the spray dried eggs support gain and feed efficiency at levels close to that of plasma protein. Now that the energy value of spray-dried eggs has been determined, diets can be formulated to more accurately meet the pig's need for amino acids and energy.

Similar broiler trials are presently being conducted to determine nutritional and extra-nutritional value of this ingredient in diets used shortly after hatching.

In summary, spray-dried eggs can play a role in infantile pig diets and be considered an important dietary component just as milk products are universally used for high performance young pig diets.