

FISH WASTE SILAGE AS AN ANIMAL PROTEIN SOURCE
FOR CROSS-BRED PIG

T.G.O. SUSILA*, N. SUTJI*, P. KOMPIANG** and I.M. NITIS*

Sardines (*Sardinella longiceps*) are the most commonly used fish for canning in Indonesia. Heads., guts and tails, representing 46% of the whole fish, are poorly utilized by-products and may be a source of pollution. But these were processed as fish meal (FM) or preserved as silage (WFS) by adding 3% (v/w) of a mixture of propionic acid and formic acid (1:1). WFS was fractionated into pressed fish silage (PFS), fish silage sludge (FSS) and de-oiled fish silage sludge (DFSS), and their feeding values and of FM were compared in the diets of growing pigs. Bali X Saddle Back barrows of about 8 kg body weight were fed on five dietary regimens over 20 weeks using a completely randomized block design consisting of 4 blocks each of 2 pigs per regimen. The feeding regimens consisted of FM, WFS, PFS, FSS or DFSS contributing 30% of the total protein of a corn, soy bean and copra meal diet. The isonitrogenous, isoenergetic diets were formulated to meet nutrient specifications of pigs of live weight range 8 to 60 kg.

Pigs fed PFS gained weight 54% faster ($P < 0.05$) than those fed the FM diet due to increased feed consumption rather than improved feed efficiency. Pigs fed other WFS or FS fractions consumed 14 to 72.9% more food than those on FM, but gained similar weight ($P < 0.05$). Dressing percentages and meat percentage of pigs on different treatments were not significantly different ($P < 0.05$). However, pigs fed various fractions of FS contained 1 to 23.9% more fat and 6 to 29% less bone than those fed the FM diet. The loin-eye muscle area of pigs fed WFS, PFS and DFSS diets was 9.6 to 45.9% larger than of those fed FM diets. The colour of fat and of meat of pigs fed FS rather than FM diet was yellower and darker.

The data suggest that various forms of fish waste silage are useful as an animal protein source- for growing pigs. PFS gave a better response in terms of live weight gain and meat to bone ratio than the other by-products.

* Department of Animal Nutrition and Tropical Forage Production,
Udayana University, Denpasar, Bali, Indonesia.

**Balai Penelitian Ternak, Ciawa-Bogor, Indonesia.