

## TECHNICAL NOTE NO. 12 -- SUGGESTED CODE FOR FISH MEAL

The California Hay, Grain, and Feed Dealers Association has been working on the establishment of a code for fish meal, use of which will be voluntary with the producer as well as with the buyer.

The following is the proposed code:

### I. TEXTURE AND COMPOSITION.

- A. Uniform grind, color, and protein content per lot: Differences between lots, in grind and color, are not desirable but are not as unsatisfactory as differences between bags within the same lot. The protein content of individual bags within a lot should not vary over a range greater than 5 pounds of protein per 100 pounds of meal.
- B. Maximum particle size: All particles should pass a No. 7 Tyler standard screen or a U. S. No. 7 standard screen, and 98 percent of the particles should pass a No. 9 Tyler standard screen or U. S. No. 10 standard screen.
- C. Moisture: An average moisture content of 8 percent, with a deviation not greater than plus or minus 2 percent, is satisfactory. A moisture content as high as 12 percent places the meal in the danger zone for heating and spoilage; a moisture content of less than 6 percent is contrary to present shipping regulations.
- D. Fat: The fat content should not be less than 5 percent nor more than 10 percent, and preferably not more than 8 percent. A low fat content is undesirable because of dustiness. A high fat content increases the hazard during storage.
- E. Labelling: All statements appearing on the tag are the manufacturer's responsibility. The tag should have on it the name of the manufacturer, the kind of fish meal, and the number of the lot.

### II. MAINTENANCE OF QUALITY.

- A. Manufacturing: In drying the meal, avoid dehydrating it to less than 6 percent, and avoid overheating it, both of which impairs protein quality.
- B. Curing: The meal should be cooled and cured prior to sacking. Heating during shipment may cause lumping and loss of quality. Sweating may cause moisture condensation, wetting, and mold growth.

### III. PACKING AND SHIPPING.

- A. Weight: The sack should contain not less than 100 pounds on the standard moisture basis.
- B. Bag Size: To facilitate piling the bags, use one size of bag in any given shipment.

- C. Sterilizing: Used bags should be cleaned and sterilized in order to prevent the spread of communicable animal diseases.
- D. Preventing damage: Use "temporary car doors" to protect the bags against damage when the car doors are opened.
- E. Separating lots: If more than one lot of meal is shipped per car, the lots should not be mixed indiscriminately but should be clearly separated by means of paper or other suitable dividers.



### UTILIZATION OF FISHERY BYPRODUCTS IN WASHINGTON AND OREGON

Very little fish scrap is being discarded in the States of Washington and Oregon. The small amount not utilized is either in an area where the supply is inadequate to support a commercial operation, or else the material is of such a nature that it does not command a market. Companies have failed because the supply of waste has been insufficient. Others have lost money on the production of materials not in demand. Anyone who intends to enter the field of byproducts should, therefore, make a thorough survey of the source of supply and the market for the finished product.

The byproducts industry is not static. Changes are taking place, and the field is becoming increasingly competitive. Fish waste, in earlier years, was thrown away. Later, it was utilized only by reduction plants. Now it is in demand for reduction purposes and for mink feed and other uses. With few exceptions, the operations have not produced appreciable revenue, and many firms have operated largely on a marginal basis. For this reason, there is a continuing and increasing pressure to find more remunerative uses for the waste. The problems to be solved are not easy; but with a rapid acceleration in technological knowledge and the demands of a growing population, further changes are inevitable.

Fish waste in Washington and Oregon is utilized as the whole waste or is separated into its various components and selected portions utilized. The whole waste is used in fish hatcheries, on fur farms, in pet food, and in reduction plants. The selected portions used are the skins, eggs, and livers and viscera. The skins are processed for manufacture into leather for women's shoes; the eggs are made into caviar and fish bait; and the livers and viscera are rendered for oil and vitamin A.

The most important producing areas in Washington are Puget Sound, Grays Harbor, Columbia River, and Willapa Harbor. In Oregon, the Astoria-Warrenton-Hammond area is the center of greatest production. Also important are Yaquina Bay, Coos Bay, and Tillamook Bay.

--By F. Bruce Sanford

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