

BIOGRO SUPER SOLVES THE MYSTERY ... OF FISHMEAL DISAPPEARING

More than half the world's fishing grounds are either depleted or fully fished. As the United Nations recently concluded, "There is considerable danger that overfishing will continue to get worse," as demand for fish increases from the current 80 million metric tons per year, to 120 million metric tons in the year 2010.

Only under the most "optimistic scenario," reports the UN's Food and Agriculture Organization, "will supply meet demand at constant real prices in the year 2010." And as human demand increases for fish, fishmeal supplies for animal feeds will shrink dramatically:

"Fishmeal usage in poultry finisher and layer diets may disappear completely and less fishmeal may go into pig grower and turkey grower diets."

-- The State of World Fisheries and Aquaculture, United Nations, FAO, 1996

There is a serious need for a high-quality feed supplement to take the place of some, or all, of a ration's fishmeal. That feed supplement is **BIOGRO SUPER**[®], a fishmeal analogue produced according to the strict standards of Dawe's Laboratories, since 1926 the world's most experienced manufacturer of micronutrients for poultry, pigs, cattle and fish.

BIOGRO SUPER OUTPERFORMS FISHMEAL IN FEEDING TRIALS

In test after test, **BIOGRO SUPER** has proven highly effective:

- 20 kg of **BIOGRO SUPER** outperformed 40 kg of high-quality menhaden fishmeal in a broiler-starter ration, producing 3.06% better weight gain and 5.63% improved feed conversion (Bulletin 283E, attached).
- In another test (Bulletin 265E, attached), 2% **BIOGRO SUPER** and 4% Asian fishmeal performed the same on *average*. But the *range* of ending weights was much closer for broilers fed **BIOGRO SUPER**. As the market demands more consistently-sized poultry, **BIOGRO SUPER** becomes the protein supplement of choice.
- Against corn-soy diets without added fishmeal, **BIOGRO SUPER** produced 9 to 12.5 percent more liveweight (Bulletin 281E, attached). These results were strongly significant, and improved farm profits by as much as US \$202 per 10,000 broilers.

**Even at only half the usage rate of fishmeal
BIOGRO SUPER dramatically increases farm profits.**

BIOGRO SUPER: FRESHER, PURER, CLEANER... MORE CONSISTENT AND MORE CONCENTRATED

How can **BIOGRO SUPER**, at 54% protein and 6% fat, outperform fishmeal at 60% protein and 9% fat? The answer lies not in a comparison of nutrient values, but in the careful selection and processing of the ingredients that comprise **BIOGRO SUPER**:

- Fishmeal sometimes is contaminated with urea, or other sources of non-protein nitrogen (NPN) which are nutritionally unavailable to monogastrics. **BIOGRO SUPER** contains no urea, as proven by an independent laboratory assay of its NPN content (attached).
- The moisture content of even the highest grade fishmeals range between 9.20 and 9.40 percent. The moisture content of **BIOGRO SUPER** is 8.44%, as shown by independent analysis (attached). **BIOGRO SUPER** is less vulnerable to moisture-related problems.
- With less moisture to cause bacterial contamination, **BIOGRO SUPER** suffers less protein decomposition, as proven by its Total Volatile Nitrogen (TVN) value of only 0.048 percent (see the attached report from an independent laboratory). Even the best menhaden fishmeal is guaranteed at no less than 0.15% TVN, and typical fishmeals guarantee 0.35% TVN.
- The fat in **BIOGRO SUPER** is remarkably fresh, as proven by independent peroxide analysis (attached). The fat is protected by **NUTRIGARD**[®], Dawe's proprietary anti-oxidant.
- When fishmeal is not properly cleaned, it retains sand, as measured by its silica content. Menhaden fishmeal typically contains 1% silica; Peruvian fishmeal can contain up to 3%. Independent analysis (attached) of **BIOGRO SUPER** shows a silica content of only 0.65%.
- Fishmeal is highly valued for its unidentified growth factors (UGF): The value of fishmeal for animals exceeds the total contribution of all its identified nutrients. **BIOGRO SUPER** contains a proven, more concentrated UGF source: Dawe's **BIOGRO**[®], a blend of non-medicated residues from industrial fermentations. For over 40 years, Dawe's has constantly researched and improved **BIOGRO**, which is included exclusively in **BIOGRO SUPER**.
- **BIOGRO SUPER** is a more uniform, free-flowing product than fishmeal (see attached screen test). It contains approximately 4% fewer large "chunks," and 10% fewer fines. It mixes more evenly in complete feeds.

Fishmeal is a by-product of nature, with all the natural variability one expects. If not properly cleaned, processed and cooked, fishmeal may break down, or contain useless and even harmful microorganisms (including *salmonella*, which is not present in **BIOGRO SUPER**--see attached).

BIOGRO SUPER is produced without heat, in a fully standardized industrial process. It is a careful balance of multiple sources of protein, minerals, vitamins and fats, each selected under strict standards of quality.