

DEVELOPING VALUE ADDED ALTERNATIVES FOR CORN MASA COPRODUCTS

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Corn masa is used in the production of corn chips, snacks and corn tortillas, which have been staples in the diets of Mexican and Central American peoples for centuries. Corn masa production is an area of the grain processing industry that generates large quantities of waste materials but to date has received little attention regarding coproduct utilization alternatives. Instead, masa processing coproduct streams typically are disposed of in landfills. The waste stream from corn masa processing, which consists primarily of fiber rich pericarp tissues, represents corn mass losses that occur during processing. Estimates of these losses have ranged from 5 to 17% of the original corn dry matter (1).

Due to mounting economic and environmental concerns, landfilling of agricultural and food processing coproduct materials has declined; and alternative disposal methods have become popular research subjects. Current options for food processing coproducts include reprocessing, recycling, resale, incineration, biomass energy production, composting, land application as soil conditioners and reuse as livestock food ingredients (2).

We examined livestock food development alternatives for corn masa processing coproducts. The project was undertaken with 4 main objectives. The first was to quantify relevant physical and nutritional properties of typical corn masa processing residues (ie, coproduct slurries) (3). The second was to blend and extrude corn masa processing coproducts with soybean meal on a laboratory scale and investigate the effects of blend ratio, extrusion temperature and extruder screw speed on extrusion processing variables and final extruded product physical and nutritional characteristics. The third was to blend and extrude corn masa processing coproducts with soybean meal on a pilot scale, and investigate the effects of blend ratio, extrusion temperature and extruder screw speed on extrusion processing variables and final extruded product physical and nutritional characteristics. The fourth was to conduct an economic assessment of various disposal and recycling alternatives for corn masa processing coproducts and thus determine disposal solutions that were feasible to implement.

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