DESIGN, MODIFICATION AND PERFORMANCE TESTING OF THE BATCH TYPE FEED MIXER *

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The study was conducted at the Machine Shop, Engineering Building and Swine Project area, CPU, Iloilo City from October 17 to 27, 1983. The construction of the feed mixer is an attempt to help the small livestock raisers mix their own feeds at a minimum power requirement for a given uniformity of mixture compared with the conventional manual feed mixing.

The feed mixer consisted of collection bin (GI sheet No. 16), screw conveyor bolted on to a 2.54 cm shaft and protected by a tube (GI sheet No. 16) 100 cm long, mixing paddle (2.54 x 0.635 cm flat bar), gathering paddle bolted on to the screw conveyor, sacking spout with a slide, frame (0.2 x 3.5 x 3.5 cm angle bars), 1/4 hp electric motor and V-belts and pulleys for transmission.

The machine could be operated by one man with a small amount of spillage. The mean mixing time for 25 kg of ingredients for all the speeds tested was 3.33 minutes at a maximum efficiency measure of 98.4% by weight of feeds. Fifty kilograms of ingredients were mixed for 5.33 minutes with an efficiency of 87.3%. The machine was 4.5 times as efficient as the manual method in terms of mixing time. A minimum feed loss of 6.4% and a maximum of 13% was observed at speeds of 170 rpm and 220 rpm, respectively.

The time needed to mix ingredients manually was 8.95 minutes with an efficiency of 97.6% by weight of feed and required a power of 0.15 man-hr. The least power requirement for the machine was 0.0225 kw-hr at 220 rpm.

The machine can mix thoroughly feed ingredients of different sizes, shapes and densities and carry a maximum load of 50 kg. The machine could be modified using wooden materials for the frame and reduce the size of the collection bin to minimize construction cost.

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