

Design of an Automatic Bovine Feeding Machine

Authors : Huseyin A. Yavasoglu, Yusuf Ziya Tengiz, Ali Göksenli

Abstract : In this study, an automatic feeding machine for different type and class of bovine animals is designed. Daily nutrition of a bovine consists of grass, corn, straw, silage, oat, wheat and different vitamins and minerals. The amount and mixture amount of each of the nutrition depends on different parameters of the bovine. These parameters are; age, sex, weight and maternity of the bovine, also outside temperature. The problem in a farm is to constitute the correct mixture and amount of nutrition for each animal. Faulty nutrition will cause an insufficient feeding of the animal concluding in an unhealthy bovine. To solve this problem, a new automatic feeding machine is designed. Travelling of the machine is performed by four tires, which is pulled by a tractor. The carrier consists of eight bins, which each of them carries a nutrition type. Capacity of each unit is 250 kg. At the bottom of each chamber is a sensor measuring the weight of the food inside. A funnel is at the bottom of each chamber by which open/close function is controlled by a valve. Each animal will carry a RFID tag including ID on its ear. A receiver on the feeding machine will read this ID and by given previous information by the operator (veterinarian), the system will detect the amount of each nutrition unit which will be given to the selected animal for feeding. In the system, each bin will open its exit gate by the help of the valve under the control of PLC (Programmable Logic Controller). The amount of each nutrition type will be controlled by measuring the open/close time. The exit canals of the bins are collected in a reservoir. To achieve a homogenous nitrating, the collected feed will be mixed by a worm gear. Further the mixture will be transported by a help of a funnel to the feeding unit of the animal. The feeding process can be performed in 100 seconds. After feeding of the animal, the tractor pulls the travelling machine to the next animal. By the help of this system animals can be fed by right amount and mixture of nutrition

Keywords : bovine, feeding, nutrition, transportation, automatic

Conference Title : ICAME 2015 : International Conference on Automotive and Mechanical Engineering

Conference Location : Paris, France

Conference Dates : September 21-22, 2015