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Technical and Economic Analyses of Poultry Production in the UAE: Utilizing an Evaluation of Poultry Industry Feeds and a Cross-Section Survey

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Abstract

The project objective is to closely investigate select UAE poultry industry production issues as well as technical and marketing aspects. A comprehensive cross-sectional survey was conducted of UAE poultry farms using PDA (Portable Data Assistant) technology. Study objectives include: (1) obtaining baseline information on existing broiler and layer farm subsectors; (2) quantifying the amount of input used in the production process and the outputs obtained, and to identify some main and by-products that might have some economic value; (3) and assessment of feed-utilization produced by the feed industry. Economic characteristics of a typical poultry farm in UAE include: average broiler production at about 2,880 tons; average layer production at about 49 million eggs; and feed cost share of the average farm's operational cost estimated at 95%. This indicates the importance of expanding investment in UAE poultry sector. Efficiency of feed utilization of birds fed feeds from one company was slightly better (1.68 vs. 1.71) than birds fed feeds from the other company. Feed utilization efficiency of selected major feed producers in the UAE could meet the standards of high quality, commonly used meat-type strains. Such results are useful to the decision-maker at both the farm and policy levels.

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1. Introduction and Objectives

The Arab Organization for Agriculture Development (2012) statistics showed that United Arab Emirates (hereafter UAE) self-sufficiency (local production/total supply) reached 23% and 54% on poultry meat and eggs respectively [1]. The UAE self-sufficiency on broiler meat increased from 9% in 1982 to 23% in 2010. The UAE self-sufficiency of eggs more than doubled from 23% in 1982 to 54% in 2010 – Fig. 1. However, one would argue that significant investment opportunities exist because 77% and 46% of poultry meat and eggs consumed are imported from other countries. Such a gap between production and consumption creates large future investment possibilities to substitute imports. It is well known that feed represents about 70-75% of operational costs at any typical broiler and layer farm. It is also commonly assumed, sometimes erroneously, that any unknown problems in commercial poultry management and production are by default due to the nutrient composition of poultry feed. Thus, it is important to evaluate the nutrient requirements of poultry feed produced in the UAE feed industry, along with conducting an economic analysis of the poultry production. The economic analysis focuses on country self-sufficiency and the need to expand investment in order to contribute towards covering local demand of poultry products. Also, another objective of this research paper is to discuss exploratory results regarding the poultry industry enterprise profitability and feed quality differences, as well as the poultry industry future possibilities of investment expansion in the Emirate of Abu-Dhabi, UAE. These exploratory results are based on a survey of broiler and layer operations in the Emirate of Abu-Dhabi carried out by a research team during 2012. The efficiency of (high quality) feed-utilization ratio in the poultry industry, i.e. feed amounts consumed by the chicken's final body weight, is an excellent indicator to measure the efficiency of a poultry farm's performance and management, as well as an indicator to measure farm profitability. In other words, the less feed used to produce chicken meat the better it is from a production perspective [2] and [3]. Consequently, the study's questionnaire was designed to collect information on commercial poultry farms regarding feed sources, quality, cost, and efficiency of feed-utilization ratio. Evaluation of nutrient requirements and cost of poultry feed produced by the UAE feed industry provided an excellent source of information to establish whether or not the industry produces feed in accordance with the National Research Council (NRC) recommendations and guidelines [4].

2. Data and Methods

This study was carried out to evaluate the nutrient composition of local poultry feeds compared to international standards published & outlined in the NRC Publication: Nutrient Requirement for Poultry, revised edition (1994). Three major UAE local poultry feed companies were selected in this study. Also, different type feeds for broiler production (starter and finisher) and egg production (starter, grower and layer) were selected from each company. Then, laboratory feed chemical analyses were performed on crude protein, fat, and ash levels as determined by methods described by AOAC [5]. Minerals analyses of total calcium, magnesium, copper, phosphorus and others were determined using procedures for the Inductively Coupled Plasma Atomic Emission Spectrometry (ICP-OES) as described by Varian [6]. Another study was designed to investigate and compare the effect of two different feed types produced by the UAE feed industry (from two major feed mill companies, B and C) on broiler feed efficiency (chicken meat production), considering the available market price of feeds utilized in this trial. One-day old Cobb-500 commercial broiler chicks were randomly assigned to two (2) different feed treatments, six replicate groups per treatment of 10 chicks per cage. The chicks were housed in Petersime battery brooders, 10 chicks per cage. Experimental treatments consisted of feeding broiler starter feeds from two different feed companies for three weeks, followed by feeding broiler finisher feeds to the same replicate groups for another week in order to produce consumer market size chickens. Body weight gain and feed intake were measured periodically and efficiency of feed

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