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## Strategies for the Fulfillment of Animal Nutritionist Competency Needs at Feedloters in Indonesia

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### ABSTRACT

This study aimed to analyzing the Strategies for fulfillment animal nutritionist competency at feedloter in Indonesia. Methods in this study using Analytical Hierarchy Process (AHP). The data collection technique was conducted by judgment sampling to seven competent resource persons in the field of animal feed they are feed director in Ministry of Animal Health and Husbandry Republic of Indonesia, Chairman AINI and Director of the competency development and certification AINI period 2015-2019, Academics of lecturer in feed formulation, operational manager and animal nutritionist in industry feedlot. The questions posed to the resource persons include factors, actors, goals and alternatives that most decisive in the fulfillment animal nutritionist competency at feedloter in Indonesia. The results of the AHP indicate that individual competence factors are critical in the strategy of the needs of livestock animal nutritionist. The Indonesian Association of Nutrition and Feed Technology (AINI) is actor the most influential in fulfilling the needs of animal nutritionist. AINI can conduct competency-based training, skills and knowledge development, latest technological innovations in ration making, and certification of competence of animal nutritionist to enhance individual competence. The alternative that a feedloter should do is to adapt the competency standards policy that exists in our country. It is concluded that the Strategies for fulfillment animal nutritionist competency at feedloter in Indonesia can be fulfilled through the individuals as animal nutritionist, role of AINI increasing the competence of animal nutritionist, and the application of customized Indonesian welfare in Indonesia.

Keywords: Analytical Hierarchy Process, Animal nutritionist feedloter, Competency, Industry feedloter

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### Introduction

Quality of human resource is a major asset for a company that has a competitive advantage and has competency in the era of globalization. Characteristics of competency indicate the motives, traits, self-concept, knowledge and skills that are causally related to superior performance in a job situation (Palan, 2007). The theory of competency explains the underlying characteristics that indicate ways of thinking and behaving of a person (Spencer and Spencer, 1993). Competency improvement requires training and capacity building to produce quality human resources in effective and efficient manner. Human resource in the livestock subsector is required to be creative, knowledgeable, and innovative.

Livestock sub-sector plays an important role in the supply of food as a source of animal protein. Data from Ministry of Agriculture (2017) shows that the beef production in 2015 was

amounted at 506.66 thousand tons, while the consumption of beef was at 613.11 thousand tons, resulting in a deficit of beef in Indonesia of 106.45 thousand tons (Figure 1).

This had made the government implement the policy of importing beef to Indonesia. The beef import program was not the right solution as if this is to be done repeatedly it would make Indonesia face dependency and reduce foreign exchange. The cause of the policy implementation was the conditions of Indonesia's livestock business which were mostly secondary or complementary businesses with small numbers of animals (less than 10) per farmer, and the technology that were still low (Lestari *et al.*, 2017). Data from BPS (2017) explains that the condition was also not supported by the growth of feedlot industry which had declined from the year 2014 (Figure 2).

The not so stringent competition of industrial feedlots in Indonesia should have become opportunity to meet Indonesia's needs on

beef. The livestock sector is vital for national development, especially in national food availability, as the demand for animal protein will continue to increase along with the increasing population and purchasing power of the people (Sukmayadi *et al.*, 2016). The feedlot industry aims to increase Indonesia's cattle population to be able to meet that beef demand and so reduce the import of beef whose supply needs to be increased.

The effort to increase Indonesia's feedlot industry needs to be supported by competent animal nutritionists. Data of Indonesian Association of Nutritionist and Feed Scientist (AINI, 2017) states that the feed is the largest component, revolving around 70-80%, in the composition of farming costs. In this case, the role of animal nutritionists is to formulate quality feeds so that good beef or carcass can be produced. Livestock nutritionists are people that are competent in the fields of nutrition and animal feed technology (AINI, 2017). The competency that needs to be possessed by animal nutritionists means the ability and authority to do a job based on knowledge, skills, and attitude in accordance to animal feed technology and nutrition science. For instance, a beef cattle nutrition expert, can specifically formulate beef cattle feed to produce good quality product. The improvement of competency requires structured effort to obtain the quality and capabilities of a good nutritionists. This improvement can be achieved through formal education, namely the colleges or universities in the field of animal husbandry especially in the science of nutrition and animal feed, as well as non-formal education through seminars and animal feed workshops. Related to this, the government has released the regulations contained in Government Regulation No. 31 of 2006 concerning the National Work Training System to support the capacity of nutritionists. The National Professional Certification Board (BNSP) is the institution to provide assistance in the process of issuing competency certification.

Currently most nutritionists in Indonesia's cattle feedlot industry are still limited to general animal husbandry undergraduates. The feedlot

industry demands human resources who know the basics of animal feed science, distinguish the nutritional properties of animal feed raw materials and their processes in the body, and understand the nutritional needs of beef cattle. Universities as institutions that produce bachelor of animal husbandry are required to be able to produce nutritionist for beef cattle farming that supports the acceleration of the feedlot industry. Competency of human resources should be improved, so that it can produce optimum performance in work, especially in the field of cattle feedlot. The problems faced in Indonesian feedlots industry today is the lack of special competency cattle nutritionist who are specially skilled in the field of ruminant feed, as not all feedlots have their own feedmill. This lack of special competency of feed nutritionist impacts the productivity of the feedlot industry as different breed and physiology status of different cows have different feed requirements. Despite the condition, feedlot industry currently still heavily relies on manufactured feed concentrates. Based on this background this study aimed to analyze the strategy to fulfill the need of animal nutritionist competency in Indonesian beef cattle feedlot industry.

## Material and methods

The data retrieval was done for three months (December 2017-February 2018) in Bogor, Jakarta and Yogyakarta involving expert resource persons in the field of beef cattle feedlot nutrition. The location of the study was conducted by purposive sampling based on the domicile of the experts. Expert resource persons for this study were seven people who are: Director of Feed of the Directorate General of Livestock and Animal Health Republic of Indonesia, Dean of Faculty of Animal Husbandry of a national university, Chairman of AINI, Head of Competency Development and Professional Certification AINI 2015-2019 period, lecturer of ration formulation subject, Operational Manager and Animal Nutritionist in feedlot industry company. The data was retrieved using judgment

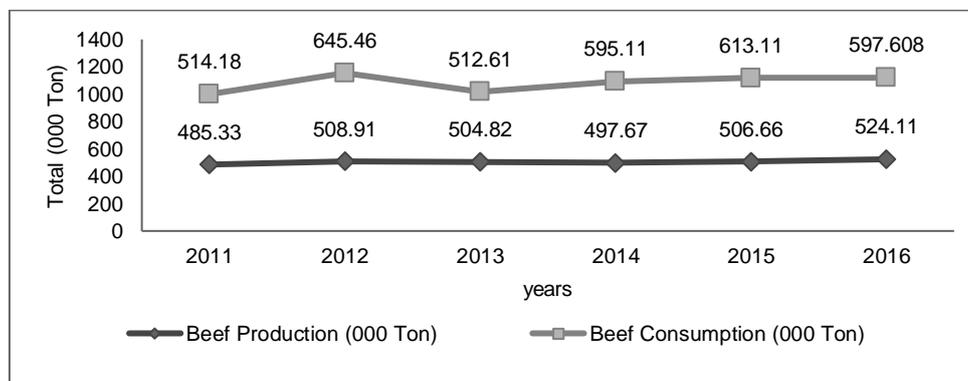


Figure 1. Total national beef consumption and production in 2011-2016 (Ministry of Agriculture, 2017).

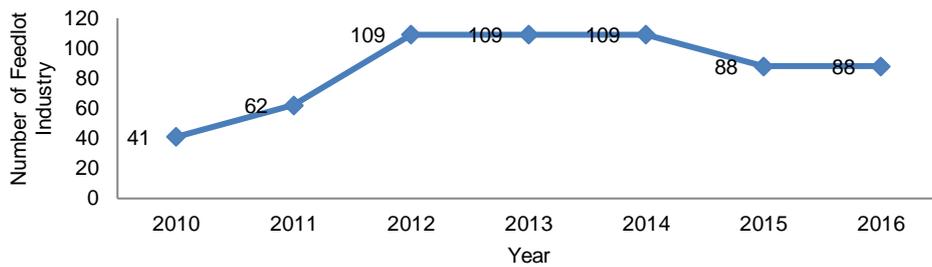


Figure 2. Number of Feedlot Industries in Indonesia in 2012-2016 (BPS 2017).

Table 1. Comparison of Analytical Hierarchy Process Judgment Scale [Saaty, 1991]

Judgment x	Verbal Equivalent	Comment
1	Equal importance	Two activities contribute equally to the objective.
2	Weak or slight	
3	Moderate importance	Experience and judgment slightly favor one activity over another.
4	Moderate plus	
5	Strong importance	Experience and judgment strongly favor one activity over another.
6	Strong plus	
7	Very strong or demonstrated importance	An activity is favored very strongly over another; its dominance demonstrated in practice.
8	Very, very strong	
9	Extreme importance	The evidence favoring one of the highest possible orders of affirmation.

sampling where data is retrieved based on certain sets of characteristics. The characteristics were defined by the terms of: having experience in the field of animal feedlotter for at least 5 years, serving as manager in feedlot industry, and having equivalent qualifications for resource persons of other stakeholders such as the government, the Indonesian Association of Animal Nutritionists and Feed Scientist (AINI) and universities. The data was then processed and analyzed using Analytical Hierarchy Process method.

Analytical Hierarchy Process (AHP) was used to assess and analyze the strategies to support the fulfillment of beef cattle feedlot nutritionist competency needs to improve the productivity of beef cattle in Indonesia. The steps of using AHP method according to Saaty (1991), are: 1) Define the problem and specify the solution desired; 2) create a hierarchical structure beginning with the goal and criteria. In the process of creating the hierarchy structure, there is no limit to the number of levels is there in the matrix; 3) construct pairwise comparison matrix that describes the relative contribution or impact of each element on each governing criterion in the next higher level; 4) compile a pairwise comparison matrix. In this step, the pairs of elements are compared and rated based on importance. The observed elements are a) factors, namely individual competencies, company needs, and competency development organization; b) actors, namely ministries of labor, AINI, feedlot industry, directorate general of animal husbandry and animal health of the Republic of Indonesia, and higher education institutions; c) purposes, namely increasing the competency of livestock nutritionists in feedlot industry, improving the performance of animal nutritionists in feedlot industry, and improving the competitiveness of feedlot industry; and d)

alternative approaches, namely implementing professional competency standard of beef cattle animal nutritionists from other countries or international associations, creating its own standard of professional competence for beef cattle animal nutritionists in Indonesia, and adopting animal nutritionist competency standard from other countries which is then adapted to the condition in Indonesia. The value of the pairwise comparison scale is shown in Table 1.

The determination of priority using AHP is carried out by developing the hierarchy. In AHP method, the minimum level of acceptable consistency is less than 0.1 or 10%. If the results are inconsistent, then there are two choices, namely repeating the comparison of preferences or doing the autocorrecting process. Opinions of expert resource persons which have been collected are processed using Expert Choice version 11 software that support solving problems for the desired strategy.

## Results and Discussion

### The hierarchical structure of the strategy to meet the competency needs of beef cattle nutritionists in Indonesian feedlot industry

The hierarchical structure of the strategy to meet the competency needs of beef cattle nutritionists describes the impact of each element at the level of the hierarchy to the main target (goal). Analysis shows that in order to obtain the best competency of animal nutritionist, priority strategies are needed by carrying out synergistic relationships that exist. The results of the hierarchy of strategies to meet the competency need of animal nutritionists in Indonesian feedlot industry are in Figure 3.

Results on element factors showed that individual competence with value of 0.397 has the highest role compared to factors such as company needs and organization of company development. Individual competence is related to the ability to achieve optimum performance and to increase the competitiveness of the feedlot industry. The level of individual competence can be viewed from the skills and knowledge of the individual concerned. Individual competency of animal nutritionists is a vital component for the ongoing business in feedlot industry. It is because 70-80% of total production capital is the cost of manufacturing feed. Knowledge and skills in feed formulation are very important in feedlot industry, in accordance with Spencer and Spencer (2009) which states that there are five competency characteristics, namely knowledge, skills, attitudes (self-concept), character, and motivation. Individual competence of animal nutritionists must be improved not only in the manufacturing of feed but their ability to adapt to company needs such as; able to formulate feed efficiently and effectively, able to

maintain the quality of feed in order in the event of availability fluctuation of raw materials, able to evaluate the process of nutrients in the body and is able to search for innovations on influence of feed to market demand in the form of quality of beef (color, texture, and marbling).

The second priority according to the result was the company needs with value of 0.380. This indicates that feedlot industry needs to work with universities and AINI to create education and training curriculum to achieve the expected competency of beef cattle fattening nutritionists. This is supported by the study of Triyonggo *et al.* (2015) that formal education institutions in Indonesia had not implemented competency-based curriculum so that graduates are not fully prepared to face the challenges of the industrial world. Competency-based training that is focused on the needs in feedlot industry such as (1) being able to formulate animal feed rations; (2) knowledge in the basis of animal feed nutrition science; (3) understanding the results of nutrient uptake in the body of the cow; (4) knowing forage

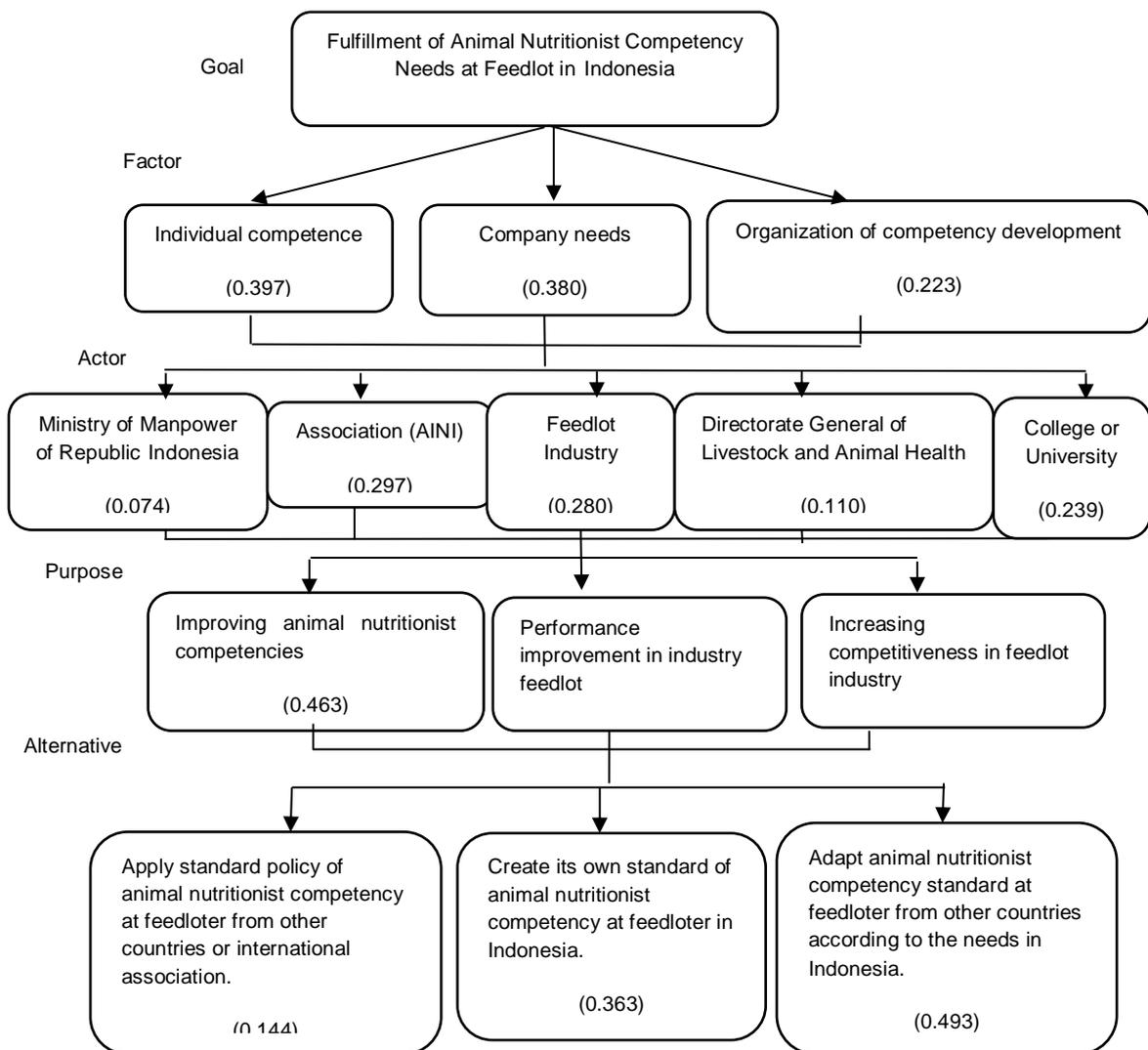


Figure 3. Hierarchy structure of strategies for fulfillment animal nutritionist competency for feedloter in Indonesia.

management for cattle feed; (5) being able to do market analysis of cattle and feed materials; (6) Having insight into supply and demand and the quality of beef cattle feed materials.

The results on the actor element showed that the Indonesian Association of Nutritionist and Feed Scientist (AINI) was the most influential actor in fulfilling the needs for beef cattle feedlot nutritionists, with value of 0.297. This is because AINI is an institution that shelters livestock nutrition experts in Indonesia. AINI is an organization that deals with professions in the field of nutrition and animal husbandry. The purpose of establishing AINI was to provide various information and development training to improve professional competence including beef cattle feedlot nutritionists. Most of AINI's functionaries come from universities. In producing animal nutritionist, universities and AINI have their respective roles. The role of university is to produce animal nutritionist who will work in feedlot industry, while the role of AINI should be to issue competency certification that assesses the abilities, knowledge, and skills for animal nutritionist. For the certification, competency-based training (CBT) is required. The training which needs to be carried out by AINI among others is competency-based training to ensure the result of competitive animal nutritionist. This is in line with the opinion of Ananda *et al.* (2016) that competency-based training is needed in accordance with the curriculum prepared by the Ministry of Manpower. The curriculum should be emphasized on achieving certain competencies which are in accordance with the needs of community as user (Sawitri *et al.*, 2013). AINI has had held many activities related to training and development for feedlot cattle nutritionist but has not been able to provide a certificate of competence. This is due to the absence of SKKNI (Indonesian National Professional Competency Standard) document from AINI for certified feedlot cattle nutritionists. The availability of competency standards for nutritionists in beef cattle is expected to improve the quality of coaching in feedlot industry in Indonesia. The process would also produce data on the number of ruminant nutritionists who possess a certain standard of competency in each year.

The result of goal element showed that the main priority is to increase the number of feedlot cattle nutritionist in Indonesia (0,463). The importance of animal nutritionists is due to the quality of animal feed materials in Indonesia that varies from region to region. The problem regarding the quality of raw materials is because of Indonesia's varying climate therefore technological innovations from beef cattle feedlot nutritionists are much needed. The needed competency for animal nutritionists includes: (1) able to detect health condition of cow; (2) knowing animal behavior of cow; (3) able to put technology of production and feeding of livestock into application; and (4) able to solve problems by utilizing existing technology and data. Learning

and practice will improve the competence of an expert and increase competitive strength.

The role of animal nutritionists in Indonesia is vital because the quality of animal feed materials varies from region to region therefore technological innovations from beef cattle animal nutritionist are needed. Innovation of new technologies and the development of appropriate technology is an important determinant of competitiveness (Simatupang and Hadi, 2004; Daryanto, 2009). The quality of raw materials that continuously changes has made the importance of technological innovation for experts in trending beef cattle fattening. Rouf *et al.* (2014) explains that feedlot industry competitiveness is determined by several factors such as natural resources, labor, technology, and market demand. This shows that the labor factor, namely animal nutritionists is a factor that needs to be continually improved. Skill improvement which are needed by nutritionists for cattle feedloter, from the results of interviews with respondents including : (1) able to detect health condition of cow; (2) knowing animal behavior of cow; (3) able to put technology of production and feeding of livestock into application; and (4) able to solve problems by utilizing existing technology and data. Learning and practice will improve the competence of an expert and have competitive strength. This is in accordance with the results of research by Aditya *et al.*, (2015) which states that competency is a skill needed to achieve results that can be accounted for and directly influence performance.

The result of alternative approach element, according to the experts, showed that adopting the policy of feedlot cattle nutritionist competency standards from other countries adapted for domestic needs as the first priority, with value of 0.493. To implement competency standards, active role by AINI to compose SKKNI for beef cattle feedlot nutritionist. AINI in collaboration with universities and Indonesia's feedloter is expected to comprehend the quality of nutritionists demanded by feedloter so that universities are able to produce competent animal nutritionist. Universities need to make efforts to arrange competency-based curriculum by continuing to make updates in specific approaches to nutrition science and animal feed technology. This would make it easier for animal nutritionists in the feedlot industry.

## Conclusions

The results of this study concluded that the priority elements to meet the needs of animal nutritionists in feedlot industry were a) individual competency factor, b) actor of the AINI institution, c) improve the competency of livestock nutritionists beef cattle in the feedlot industry, d) the adoption of competency standards for animal nutritionist from outside Indonesia that has been adjusted for Indonesia. This aims to improve competitiveness and develop the quality of

livestock nutritionists in Indonesia that are tailored to the needs of the labor market.

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