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Constraints Facing Poultry Producers in Iraq

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Abstract

There is a decrease in poultry production in Iraq. The study was conducted in Babylon Province, Iraq; to identify constraints facing broiler producers. One hundred poultry producers were randomly selected. A list of 4 of constraints facing poultry producers: production, financial, marketing and institutional, covering 24 constraints was prepared. More than half of poultry producers indicated there was a high level of constraint facing them. Production, financial, and marketing constraints had high effect on producers. High cost of feed, competition from imported birds, price fluctuation, high cost of energy, inappropriate environmental conditions, continuous outage of electricity, high cost of drug and vaccines, high mortality rate, competition of birds from other province, lack of quality day old chicks from local hatcheries, lake of capital, poor extension service, production halls not utilized at full operating capacity, lack of quality feeds, and disease attack were the most severe constraints. Negative significant relationships exist between years of experience in poultry production, number of chicken sets/ year, training attendance and overall constraint score. There were differences between constraints severity depending on years of experience, number of chicken sets/ year, and training attendance. Challenges facing poultry producers can be addressed through active extension services.

Keywords: Challenges, Iraq, Management, Production constraints.

Introduction

Poultry production is an important economic activity in Iraq. With increase in demand for poultry meat, there is a decrease in poultry production. For the period of 2011-2016, the number of productive broiler projects has decreased from 1884 to 1634, the number of sold chickens decreased too from 45,336,000 to 44,753,000 (Central Statistical Organization Iraq, 2017). According to the annual domestic per capita consumption of poultry meat in 2013 reached 24 kg (United States Development Agency, 2013); and the population of Iraq in 2016 reached 37 million, the demand for poultry meat will be 888000 t. The production of poultry meat in 2016 was 87000 t, which means that food gap size in domestic production reached 801000 t. There is a strong need to increase poultry production, which requires identifying and solving the constraints that impede production.

In Iraq little has been reported on constraints faced by poultry producers. Determination of these constraints could be useful in enhancing productivity. The study was undertaken to determine constraints facing poultry producers, determine the relationship between constraints and socioeconomic characteristics of poultry producers and determine the differences in constraints effect based on socioeconomic characteristics.

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Methodology

The study was carried out in Babylon province, center-south of Iraq, which is located between 32° and 33.25° North latitude and 44°to 45° East longitude. There are 273 productive poultry projects in the province as at 2016, with the province coming second in term of number of broiler projects and third in terms of amount of meat produced (Central Statistical Organization Iraq, 2017). The population for this study consisted of 273 owners of poultry farms, 13 were chosen for testing reliability of the questionnaire, one hundred poultry farms were selected randomly from the remaining 260 to provide data from 1-15 July 2018.

The instrument used was a 2-part questionnaire. The first part included the socio-economic characteristics: years of experience in poultry production, number of productive halls, number of chickens set/ year, number of chicken/set and training attendance. The second part listed 24 constraints faced by poultry producers grouped into the categories: production constraints (10), financial (7), marketing (4), and institutional (3).

Content validity of the questionnaire was established by a panel of experts in the field of agricultural extension and poultry production. A pilot study was conducted to establish reliability of the instrument, a Cronbach's alpha (a reliability coefficient) of 0.93 was established, indicating the instrument used was reliable and valid.
Constraints were measured on a 5-point continuum scale as very high constraint (VH) (4), high (H) (3), moderate (M) (2), less (L) (1) and not a constraint (NT) (0). In relation to their level of vulnerability, in all-over constraints, each respondent was given a score ranging between 0-96. Respondents were thereafter categorized into 3 groups according to effect of constraints as low effect (0-31), medium effect (32-63) and high effect (64-96). Each constraint was given a score ranging from (0 to 4), the three categories and 24 constraints were categorized regarding on weighted arithmetic mean (WM) of their effect into the groups low (0-1.33), medium (1,34-2.67), and high (2.68-4).
Data were analysed using frequency, percentage, mean, standard deviation (SD), weighted arithmetic mean (WM) [WM=(no.of VH×4) + (no.of H×3)+(no.of M×2)+(no.of L×1)+(no.of NT×0) / total respondents], simple correlation and Chi square test. Constraints facing poultry producers were analysed separately, weighted mean score were calculated, and the relative importance ranked in descending order.

Results and Discussion

Overall Constraints

Observed constraint score ranged from 0 to 96 with a mean of 58.96.From Table 1 it is observed that more than half of the respondents (52%) faced high constraints, followed by those that faced medium (31%) and low (17%) constraints. The average constraint effects for all respondents were within medium category.

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Table 1: Constraint effect

Constraint effect	% (n = 100)	Mean	SD
Low (0–31)	17	18.88	9.45
Medium(32–63)	31	46.03	8.89
High(64–96)	52	79.77	10.57
Overall	100	58.96	24.1

Constraints Categories

Among constraint categories, marketing constraints were ranked first, followed by financial, production and institutional constraints. Data in (Table 2) indicates that the highest portion (94%) of the respondents faced high constraint in marketing, followed by (81%) in financial, and (80%) in production category. Tuffour and Sedegah (2013) asserted that marketing constraints were ranked first, followed by financial and production constraints.

The overall index of marketing, financial and production constraints was high, while those of institutional constraints were medium.

Table 2: Weighted mean and effect level of constraints categories

Categories	Effect level						WM	SD
	Low		Medium		High			
	F	%	F	%	F	%		
Production	8	8	12	12	80	80	2.96***	0.832
Financial	7	7	12	12	81	81	2.99***	0.996
Marketing	1	1	5	5	94	94	3.25***	1.08
Institutional	18	18	32	32	50	50	2.43**	0.449

***= high; **=medium

Effect of Constraints

Constraints affecting poultry producers vary in their effect level (Table 3) .For production constraints, ;inappropriate environmental conditions , continuous outages of electricity, high mortality rate, lack of quality day old chicks from local hatcheries, high losses of feed, production pens not utilized at full operating capacity, lack of quality feeds, and disease infestation had high effect on respondents.

About financial constraints, high cost of feed, high cost of energy, high cost of drug and vaccines, and lack of capital, were the constraints with highest severity.

Competitions from imported frozen chicken, market/price fluctuation, and competition of chicken from other province, were the most cited marketing constraints. Regarding institutional constraints, poor extension service was the high effected constraint.

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Table 3: Weighted mean and level effect for constraints of poultry production

Category	Constraint	Weighted mean
Production	Inappropriate environmental conditions	3.8***
	Continuous outages electricity	3.8***
	High mortality rate	3.6***
	Lack of quality day old chicks from local hatcheries	3.5***
	High losses of feed	3.3***
	Production halls not utilize at full operating capacity	2.9***
	Lack of quality feeds	2.7***
	Disease attack	2.7***
	Lack of technical knowledge in poultry production	2.4**
	Scarcity of trained labor	0.9*
Financial	High cost of feed	4.0***
	High cost of energy	3.9***
	High cost of drug and vaccines	3.8***
	Lake of capital	3.3***
	High cost of day old chicks	2.5**
	High costs of veterinary supervision	2.3**
	High cost of labor	1.1*
Marketing	Competition from imported frozen chicken	4.0***
	Market/price fluctuation	4.0***
	Competition of chicken from other province	3.6***
	Poor marketing information	1.4**
Institutional	Poor extension service	3.0***
	Lack of training on modern poultry production practices	2.4**
	Poor poultry producers association	1.9**

***= high; **=medium; *=low.

Constraints and respondents characteristics

Relationships between socioeconomic descriptors of respondents and constraints encountered. There were negative significant relationships between the overall constraint score and respondent's years of experience in poultry production, number of chicken set/ year, and training attendance (Table 4). Adetayo *et.al*., 2013, indicates that years of experience were not significantly related to constraints, while Ali *et al*.,2015, found a positive significantly relationship between years of experience , training attendance and proiler production.

Table 4:Correlation between socioeconomic characteristics and constraints

Characteristic	Correlation coefficient(r)
Years of experience	– 0.297*
Number of productive halls	0.137
Number of chickens sets/ year	- 0.423*
Number of chickens / set	0.125
Training attendance	-0.562*

*P≤0.05.

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There were significant relationships between constraints categories and years of experience in poultry production, number of chickens sets/ year, and training attendance (Table 5).

Table 5: Distribution of respondents according to characteristics and constraint effect

Characteristics and description		Category constraint effect								Chi square
		Low		Medium		High		Total		
		n	%	n	%	N	%	n	%	
Years of experience	5-10	0	0	3	3	14	14	17	17	10.41*
	11-16	6	6	15	15	23	23	44	44	
	17-22	11	11	13	13	15	15	39	39	
	total	17	17	31	31	52	52	100	100	
Number of productive halls	1-2	8	8	13	13	24	24	45	45	1.28 ns
	3-4	8	8	17	17	28	28	53	53	
	5-6	1	1	1	1	0	0	2	2	
	Total	17	17	31	31	52	52	100	100	
Number of chicken set/ year	1-2	10	10	3	3	2	2	15	15	26.7*
	3-4	5	5	16	16	33	33	54	54	
	5-6	2	2	12	12	17	17	31	31	
	Total	17	17	31	31	52	52	100	100	
Number of chickens / set	<10000	7	7	14	14	19	19	40	40	2.4 ns
	10000-15000	10	10	15	15	30	30	55	55	
	15000>	0	0	2	2	3	3	5	5	
	Total	17	17	31	31	52	52	100	100	
Training attendance	1-4	0	0	25	25	42	42	67	67	39.25*
	5-8	14	14	5	5	9	9	28	28	
	9-12	3	3	1	1	1	1	5	5	
	total	17	17	31	31	52	52	100	100	

*P≤0.05.

Discussions

Results indicated that (52%) of poultry producers faced high constraints in poultry production, while (31%) and (17%) had medium and low constraints respectively. The average constraints effects for all respondents were (58.96) which are within medium level of values ranging between (0-96) numeric values (Table1). Any constraint facing poultry producers will have adverse effect on production.

In all categories of constraints, most of respondents felt high, followed by medium and low effect (Table 2).

For production constraints; environmental condition ranked first (Table3). Inappropriate environmental conditions (temperature, relative humidity and dust storms) pose threat to poultry producers by resulting in highly economics losses from increasing mortality and reducing poultry yield.

In Iraq, there is usually a drop in temperature below zero Celsius during January - February, as well as the sharp rise in temperature during May - September, when temperature exceeds 50 Celsius. Dust storms are also increasing during March- October with relative humidity rising. These environmental conditions are inappropriate for poultry performance, and ranked first among production constraints. Mendes *et al*., (2014); Kusi *et al*., (2015); Wong *et al*., (2017) reported that inappropriate environmental conditions were production constraints.

Intensive poultry production is heavily reliant on electricity for maintaining shed environment as well as in the supply of feed, lighting, and water (Khokhar *et al*.,2015). However, electricity

outages for broiler production are a common phenomenon faced producers in many countries (Adei and Asante, 2012; Mendes *et al*., 2014; Kusi *et al*.,2015;Hassan *et al*.,2016; Samboko *et al*., 2016). Most of Iraqi provinces receive 8–12 hours of electricity per day, and continuous outage of electricity causes decreased poultry performance and increased production costs, which could inform their being ranked second among production constraints.

High mortality rate is a challenge facing poultry producers and causes an important economic loss. It happen due to a combination of improper feeding practices, ignorance of management needs, poor distribution of vaccines, presence of diseases, and bad weather condition (Addis *et al*.,2014; Islam *et al*., 2014) . High mortality rate is a common problem in most countries including Iraq (Anang *et al*., 2013; Food and Agriculture Organization, 2014; Sharif *et al*.,2014; Akbay and Azeez, 2016; Kraidi *et al*.,2016; Yemane *et al*.,2016; Mbuza *et al*.,2017; Osti *et al*., 2017). Poultry producers in Babylon province suffer from high mortality rate and thus ranked it as third most important.

Quality of day old chick is a very essential factor for profitability of poultry producers. In hatcheries, the chick quality is determined by quantitative and qualitative scoring, considering various numerical or observation quality criteria (Sozcu and Ipek ,2015). For poultry producers it is difficult to get day-old-chicks of good quality from local hatcheries. There are ten hatcheries in the province compared to 273 poultry enterprises/projects (CSO, 2017). The respondents put this constraint as fourth in rank, in line with findings of Adetayo *et al*.,(2013); Mendes *et al*., (2014); Ali *et al*., (2015); Kabir *et al*., (2015) and Onono *et al*., (2018).

One of the fundamentals of successful management of poultry projects is the control of the way and quantity of feed provided; otherwise large amount of feed will be lost. It seems that because of traditional production methods, producers suffer from loss of large amount of feed, and thus ranked it the fifth most severe among production constraints, which is in line with the findings of Osti *et al*., (2017). Many diseases attack poultry, which are considered an important cause of huge economic loss for poultry producers. Markos, 2016; Sadiq and Mohammed, 2017, reported that disease causing huge economic loss to poultry producers. Disease attack is a production constraint facing poultry producers in Iraq and is ranked eighth. Sambo *et al*., 2015; Jibril *et al*., 2016; Ume *et al*., 2016, pointed to same constraint.

The most pressing financial constraint faced by respondents was high cost of feed, and ranked first. Feed cost represent high percentage of total production costs (Tandogan and Cicek, 2016; Olorunwa, 2018). Because of high feed cost, poultry producers rear less birds with time (Njoroge *et al*., 2015).Studies of Adetayo *et al*. (2013); Malarvizhi and Geetha (2015); Dube *et al*. (2016) and Hamid *et al*. (2017) pointed to high cost of feed.

Energy is an essential input for poultry production. The main source of energy is electricity, but because of the continued electricity outages, poultry producers in Iraq rely on generators, so the energy cost will include electricity cost, heating cost, and cost of fuel and maintenance of generator. High cost of energy is considered a constraint from view point of respondents, and is ranked second among financial constraints.

Poultry is susceptible to many diseases which cause highly loss, to which poultry producers used drug and vaccines to control. Poultry producers in Iraq consider high cost of drugs and vaccines a constraint facing them and ranked it third among financial constraints. Adetayo *et al*., (2013); Kusi

et al., (2015), Butler (2016), Ume *et al*., (2016) and Hamid *et al*., (2017) indicated high cost of drug and vaccines, while Oluwatayo *et al*., (2016) found low cost.
Modern intensive and semi-intensive poultry production requires high capital investment. Among financial constraints, Poultry producers ranked lack of capital as fourth, which is in line with results of Kabir *et al*., (2015) and Hassan *et al*., (2016).

The first most severe marketing constraint that poultry producers faced was high competition from imported frozen chicken. Many countries of the world are forced to import poultry meat due to insufficient domestic production. The results obtained for imported chicken is in line with the findings of Anang *et al*., (2013); Tuffour and Sedegah (2013).
The second marketing constraint of the respondents was market/price fluctuation. Such fluctuations may be a result of both internal and external factors, especially implications of trade policies, government regulations targeting prices and supply control (Wickramarachchi *et al*., 2017). Adetayo *et al*., (2013); Vetrivel and Chandrakumarmangalam (2013); Ali *et al*., (2015); Heise *et al*., (2015); Kabir *et al*., (2015) and Ukum *et al*., (2018), pointed to same constraint.
Competition of chicken from other province was the third most important marketing constraint facing poultry producers in Babylon province. Some provinces have large and modern poultry projects, especially in the north.

Poor extension service is the most severe institutional constraint facing poultry producers in Babylon province. Extension service is considered an essential input of poultry production as productivity of poultry projects increased when proper and timely services are provided to the producers. The result is in line with Kabir *et al.,* (2015); Hassan *et al*., (2016); Hamid *et al*., (2017).

Coefficient of correlation computed in order to explore the relationships between overall constraints score of each of the respondents and selected characteristics of poultry producers (Table 4) revealed that increase in respondents' years of experience, number of chickens sets/ year, and training attendance decreased with extent of constraints.

Chi-test showed differences between constraints effect depending on poultry producers' characteristics. The highest percentage of respondents with high constraint effect was among the first category of training attendance (the least participation in training courses), while the highest percentage of respondents with least constraints effect within second category of training attendance.

This indicate that training significantly improved poultry production practices through better adaptation of new techniques. (Kajuna, 2012; Ibitoye and Onimisi, 2013; Parveen *et al*., 2013; Ezeibe *et al*., 2014).

Conclusions and Recommendations

Production, financial, and marketing categories had high effect on producers. High cost of feed, competition from imported birds, market/price fluctuation, high cost of energy, inappropriate environmental conditions, continuous outage of electricity, high cost of drug and vaccines , high mortality rate , competition of birds from other province, lack of quality day old chicks from local hatcheries, high losses of feed, lake of capital, poor extension service, production halls not utilized at full operating capacity, lack of quality feeds, and disease attack were the most severe constraints. Negative significant relationships existed between years of experience in poultry production, number of chicken sets/ year, and training attendance with overall constraint score.

There were differences between constraints effect depending on years of experience, number of chickens sets/ year, and training attendance.

There is need to address the challenges faced by poultry producers through activation of extension services. Existing association of poultry producers should be more effective and efficient. - Arrangement for electricity supply for poultry projects is required.

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