

## **EFFECT OF USING POTATO TOPS HAY IN GROWING RABBIT DIETS ON GROWTH PERFORMANCE, DIGESTIBILITY AND CARCASS TRAITS**

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### **SUMMARY**

*The present study was carried out to investigate the effect of using potato tops hay instead of clover hay at levels of 0, 5, 10, 15, 20 and 30 % in rabbit diets on the growth performance, feed efficiency, digestibility coefficient and some carcass traits of the NZW rabbits during the growing period from 5 to 13 weeks of age. A total of sixty NZW rabbits at 5 weeks of age were randomly divided into 6 groups, each of 10 individuals, the average body weight of rabbits in the experimental groups at beginning of the experiment ranged from 715 to 718 g. Each treatment group received one of six experimental pelleted diets. At 11 weeks of age, digestibility trial was carried out for five days and, at 13 weeks of age, five individuals were slaughtered to study carcass and offal traits.*

*Results obtained indicated that , live body weight ,daily weight gain ,daily feed intake and production index of rabbits were not affected significantly ,while, feed conversion, protein efficiency ratio and efficiency of energy utilization of rabbits were affected significantly ( $p < 0.01$ ) by feeding different levels of dried potato tops in diets through the experiment from 5 to 13 weeks of age .Rabbits fed on 20% DPT consumed less feed intake and recorded better value of feed conversion and protein efficiency ratio than other groups during the whole experimental period from 5 to 13 weeks of age. Rabbits fed diets containing 5 ,10 ,15 and 20% DPT had better values of feed conversion , protein efficiency ratio and efficiency of energy utilization than the control group , while , the group fed diet contains 30% DPT had recorded lower values at the whole period from 5-13 weeks of age.*

*Carcass traits were not affected significantly among treatments ,while, digestibility coefficient and nutritive value were affected significantly due to feeding dried potato tops hay in rabbit diets . The highest values of digestibility coefficients of all nutrients except (EE) were recorded for rabbits fed 5 and 10% DPT in the diet. However, nutritive values were better for all groups fed DPT than the control group. The obtained results from this experiment indicate that potato tops hay can be used instead of clover hay up to 30% of the diet without any detrimental effect, while should not exceed to 10% from the practical point of view .*

**Keywords: Rabbits, growth performance, digestibility, carcass traits and potato tops hay**

## INTRODUCTION

Feeding cost represents the greatest part (about 65 to 70 %) of the total cost of animal production. Therefore, any effort of reducing the feeding cost will increase the net profit of the producers. Recently, many studies investigated the introducing of some agricultural by-products in complete pelleted feeds of rabbits instead of clover hay which represents about 30-40 % of the diet. In Egypt, there is a need to seek for more untraditional animal feed resources to compensate the shortage of the available amount of animal feeds, especially feeders and hays, to cover the requirements of the stocks. Potato is the most important vegetable crop in Egypt, at harvesting time, a huge amount of green tops of potato are not used by farmers and they neglect them without any useful use. Vegetable production results in a considerable quantity of by-products, some of which are unattractive to people and some of which are unpalatable or poorly utilized when eaten by people. Animals have a substantial role in making use of such by-products, and, indeed the economics of production systems increasingly depend up on efficient use of all the component resources (Spedding, 1979). Here, such animals as rabbits, because of their high reproductive rates, are very efficient converters of fibrous vegetable wastes into lean meat. These animals are also flexible in terms of their low capital investment (Walsingham, 1972) and their ability to cope with seasonally of vegetable production because of their short breeding season (Cheeke, 1977). This is a very important consideration for small holders in developing countries. In the field of using agricultural processing by-products, many attempts were recently made to utilize some of these by-products in rabbit feeding such as artichoke (Zeweil, 1992 a and El-Sayaad *et al.*, 1995) and tomato pomace (Ahmed *et al.*, 1994 and Abd El-Razik, 1996). Other materials were also studied like carrot tops hay (El-Kerdawy *et al.*, 1992), cassava foliage (El-Gendy, 1994), desert forages (Abdel-Samee *et al.*, 1992 & 1994), sweet potato (Soliman, 1995), acacia and water hyacinth (Eleraky and Mohamed, 1996), okra and sugar beet by-products (Tag-El-Din, 1996) and turnips (El-Meligy, 1996). However, no attempts were made on using potato tops in complete pelleted rabbit diets in Egypt. Therefore, the present study was carried out to investigate the effect of substitution of clover hay by dried potato tops in complete pelleted growing rabbits diets at varying levels on some productive traits in order to get some knowledge on the possibility of feeding rabbits on potato tops and to what extent we can replace it instead of clover hay.

## MATERIALS AND METHODS

This study was carried out at the rabbitry of Agricultural Experimental and Research Center, Faculty of Agriculture, Mansoura University within the project "Production Improvement of Rabbits by crossbreeding and using untraditional diets in Dakahlia Governorate" which belonged to Mansoura University during the period from February to April 1996.

### *The experimental design :*

The work was carried out to study the effect of using potato tops hay instead of clover hay at levels of 0, 5, 10, 15, 20 and 30 % in rabbit diets on the growth performance, feed efficiency, digestibility coefficient and some carcass traits of the

NZW rabbits during the growing period from 5 to 13 weeks of age. The experimental design is summarized in Table (1).

**Table 1. Design of the experiment**

Treatment	Potato tops hay %	Clover hay %
1	0.0	30.0
2	5.0	25.0
3	10.0	20.0
4	15.0	15.0
5	20.0	10.0
6	30.0	0.0

**Table 2. The chemical composition of Potato tops hay and Clover hay**

Traits %	Potato tops hay %	Clover hay %
Dry matter	88.88	90.00
Crude fiber	13.53	20.70
Crude protein	11.74	17.00
Ether extract	2.46	2.70
N.F.E	40.38	39.60
Ash	20.77	10.00

**Experimental animals:**

A total of sixty NZW rabbits at 5 weeks of age were randomly divided into 6 groups, each of 10 individuals. The average body weight of rabbits in the experimental groups at the beginning of the experiment groups ranged from 715 to 718 g. Each treatment group received one of six experimental pelleted diets.

**Experimental diets:**

Six experimental diets were formulated from the available and prevailing ingredients for feeding rabbits. Fresh potato tops were cut during crop harvesting at April (1995), then they were sun dried carefully, mashed and then stored. The diets were manufactured at November (1995) and contained dried potato tops hay instead of clover hay at levels of 0, 5, 10, 15, 20 and 30% potato tops hay, the composition and chemical analysis of the experimental diets are presented in Table (3).

**Management:**

Young rabbits were housed individually in galvanized cages in well-ventilated pens. Each cage have a stainless steel nipple for drinking and a feeder allowing to record feed intake for each rabbit. Feed and water offered ad-libitum. All rabbits in the treatment group were kept under the same managerial, hygienic and environmental conditions during the experimental period.

**Digestibility trials:**

At 11 weeks of age, six digestibility trials were carried out to determine the digestibility coefficient of the different nutrients and feeding values of the experimental diets. Four NZW rabbits from each treatment group were used in each trial. A preliminary period of 7 days were followed by 5 days as collection period for faeces. The feed intake was accurately determined and coprophagy was not

prevented. Quantitative collection of faeces started 24 hours after offering the daily feed, using aluminum dishes (20 x 10 x 3.5 cm). The faeces of each rabbit were collected every day in the morning. Any shaded gar or foreign materials were discarded, then the faeces were dried at 60°C for 8 hour's a forced draught oven, then bulked. At the end of the collection period, all collected faeces for each rabbit were mixed, ground and stored for chemical analysis.

#### **Slaughter test:**

At 13 weeks of age, five rabbits from each treatment group were randomly chosen for slaughter test. Rabbits were fasted for 18 hours before slaughtering, then were weighed individually as preslaughter weight. Rabbits were slaughtered by cutting the jugular veins. After complete bleeding, they were weighed, skinned and then eviscerated. Fur, empty carcass, head and liver were immediately weighed. The blood loss was calculated by difference between weights before and after slaughtering. Dressed weight (total edible parts) were calculated as the total weight of carcass plus head and liver. All traits were calculated as percentage of the pre-slaughter weight.

**Table 3. Composition and analysis of the experimental pelleted diets**

Ingredients	5%		10%		20%		30%	
	Control	D.P.T	D.P.T	D.P.T	D.P.T	D.P.T	D.P.T	D.P.T
Clover hay	30.00	25.00	20.00	15.00	10.00	00.00		
Dried Potato Tops <sup>1</sup>	00.00	5.00	10.00	15.00	20.00	30.00		
Yellow maize	32.00	31.07	30.14	29.34	27.74	25.87		
Wheat bran	26.80	26.80	26.80	26.80	26.80	26.80		
Soybean meal (%)	7.47	8.40	9.33	10.13	11.73	13.60		
Molasses	2.13	2.13	2.13	2.13	2.13	2.13		
Nacl	0.30	0.30	0.30	0.30	0.30	0.30		
Limestone	1.00	1.00	1.00	1.00	1.00	1.00		
Premix <sup>2</sup>	0.15	0.15	0.15	0.15	0.15	0.15		
DI. methionine	0.15	0.15	0.15	0.15	0.15	0.15		
Total	100.00	100.00	100.00	100.00	100.00	100.00		
C.P %	15.42	15.59	15.56	15.40	15.50	15.62		
C.F %	12.58	12.56	12.34	12.28	12.34	12.21		
E.E %	3.81	3.39	3.34	3.24	3.38	3.38		
NFE %	48.29	47.96	48.37	49.03	48.62	48.39		
DE (Kcal.Kg)	2790	2920	2930	2690	2790	2790		

1- D.P.T : dried potato tops hay (11.74% C.P, 13.53% C.F, 2.46% E.E and 20.77% Ash.

2-Each kilogram contains : vit A 2.000.000 iv, vit D3 150.000 iv, vit E 8.33g, vit K 0.33 g, vit B1 0.33g, vit B2 1.0 g, vit B6 0.33 g, vit B12 1.7 mg, vit B5 8.33 g, Pantothenic 200g, Zn 11.79g Fe 12.5g, Cu 0.5g, Co 1.33 mg, Se 16.6 mg andMg 66.79 mg.

#### **Data collection:**

Rabbits were individually weighed to the nearest gram at weekly intervals during the experimental period from the 5<sup>th</sup> to 13<sup>th</sup> week of age. Daily weight gain was calculated at 5-13 weeks of age. The average amount of feed consumed per rabbit at certain period was obtained by the difference between the offered and remaining feed to the nearest gram. Feed conversion was calculated as feed intake (g) / weight gain (g) for a certain period. Protein utilization efficiency was calculated as weight gain (g) / crude protein consumed (g) for the certain period. Efficiency of energy

utilization, it was calculated as digestible energy consumed (Kcal) / weight gain (g) for the certain period. Production index (PI) was calculated according to North (1981) as live weight (Kg) / feed conversion x 100 for the certain period.

Apparent digestibility coefficient (ADC) was calculated as follows :

$$\text{ADC} = \frac{\text{Total nutrient intake} - \text{Total nutrient in faeces}}{\text{Total nutrient intake}} \times 100 .$$

Digestible energy (DE) was calculated according to Cheek (1982) as follows :

$$\text{DE (Kcal)} = 5.28 (\text{DCP g/Kg}) + 9.51 (\text{DEE g/Kg}) + 4.2 (\text{DCF g/Kg}) + 4.2 (\text{DNFE g/Kg})$$

While the total digestible nutrient (TDN) was calculated as follows :

$$\text{TDN} = \% \text{ DCP} + \% \text{ DCF} + \% \text{ DNFE} + \% \text{ DEE} \times 2.25 \quad \text{where :}$$

DCP: digestible crude protein, DCF: digestible crude fiber, DNFE: digestible nitrogen free extract and DEE: digestible ether extract. Samples of feed and dried faeces were analyzed for dry matter (DM), crude protein (CP), ether extract (EE), crude fiber (CF) and ash according to the conventional methods of A.O.A.C (1980), using duplicate samples.

### **Statistical analysis**

Data were analyzed to study the effects of using the dried potato tops hay in rabbit feeding. Data were analyzed by the analysis of variance according to Snedcor and Cochran (1982). Significant differences among means were detected by the method of Duncan (1955). The following model was used

$$Y_{ij} = \mu + T_i + e_{ij}$$

where :  $Y_{ij}$  = An observation.

$\mu$  = Overall mean.

$T_i$  = Effect of treatment (1, 2, ....., b) and

$e_{ij}$  = Random error.

## **RESULTS AND DISCUSSION**

Results obtained indicated that, live body weight, daily body weight gain, daily feed intake and production index of rabbits were not affected significantly by feeding different levels of dried potato tops hay in diets through the experiment from 5 to 13 weeks of age (Table 4). Rabbits fed diet contains 30% DPT had heaviest live body weight (1313 g) at 9 weeks of age than other groups and equal weight with the control group (1918 g) at 13 weeks of age, but rabbits fed 5, 10 %DPT in their diets had heavier live body weight (1945 and 1947 g) at 13 weeks of age. Rabbits fed diets contains 5 and 30% DPT had better values of daily weight gain than the control and other groups at the whole period 5-13 weeks of age, while the group fed 15% DPT had lower value. Rabbits fed diets contain 5, 10, 15 and 20% DPT had lower daily feed intake (79, 76, 70 and 71.2 g) than the control and the group fed diet contains 30% DPT (81 and 81.8 g) at the whole period 5-13 weeks of age. Rabbits fed diets contain 5, 10, 15 and 20% DPT had better values of production index than the control group by about 6.61, 5.64, 1.16 and 6.61%, while the group fed diet contains 30% DPT was decreased by about 2.44% at the whole period 5-13 weeks of age. These results agreed with those obtained by Parigi-Bini and Chiericato (1980), Abd El-Rahim et al (1991), Zeweil (1992a), El-Kerdawy et al (1992) Ahmed et al (1994), Soliman (1995), Abd El-Lateif (1996) and El-Meligy (1996) who

reported that feeding some agriculture by-products in the diets of rabbits did not show any negative significant effects on growth performance traits .

Feed conversion, protein utilization efficiency and efficiency of energy utilization of rabbits were affected significantly ( $p < 0.01$ ) by feeding different levels of dried potato tops hay in diets through the experiment from 5 to 13 weeks of age (Table 4). Rabbits fed diets contain 5 ,10 ,15 and 20% DPT had better feed conversion(3.55 ,3.53 ,3.51 and 3.42 )than the control and the group fed diet contains 30% DPT (3.75 and 3.78) at the whole period from 5-13 weeks of age . Rabbits fed diets contain 5 ,10 ,15 and 20% DPT had better values of protein utilization efficiency than the control group by about 4.65 , 4.65 , 6.39 and 8.72 % , while the group fed diet contains 30% DPT was decreased by about 2.33 % at the whole period from 5-13 weeks of age . Rabbits fed diets contain 5 ,10 ,15 and 20% DPT had better values of efficiency of energy utilization than the control group by about 0.97 , 0.97 , 9.62 and 6.74 % , while the group fed diet contains 30% DPT was decreased by about 0.96 % at the whole period 5-13 weeks of age . Theses results agreed with those obtained by Lebas (1988) ,El-Gendy (1994) and Tag-El Din (1996) who reported that feeding some agriculture by-products in the diets of rabbits improved significantly feed conversion.

**Table 4. Means\* and standard errors ( $x \pm SE$ ) of live body weight ,daily weight gain, feed intake ,feed conversion ,protein utilization efficiency ,efficiency of energy utilization and production index of rabbits as affected by feeding dried potato tops hay (DPT)\* in the diets**

Treatment	Control	5 % DPT	10% DPT	15%DPT	20%DPT	30%DPT	Sig***
traits							
Live body weight (g) :							
5 weeks	718±15	716±29	716±16	717±18	715±16	716±10	NS
9weeks	1248±28	1202±47	1282±42	1230±29	1281±36	1313±37	NS
13weeks	1918±46	1945±53	1947±5	1828±74	1881±55	1918±65	NS
Daily body weight gain (g) :							
5-13weeks	21.5±1.0	22.2±0.9	21.5±1.2	19.8±1.4	20.6±1.0	21.8±1.1	NS
Daily feed intake (g) :							
5-13weeks	81.0±3.9	79.0±2.8	76.0±4.0	70.0±.4	71.2±4.3	81.8±5.2	NS
Feed conversion (g feed /g body weight gain )							
	A	b	b	b	b	a	
5-13weeks	3.75±0.08	3.55±0.03	3.53±0.03	3.51±0.03	3.42±0.04	3.78±0.03	0.01
Protein utilization efficiency (weight gain g / protein consumed g) :							
	b	a	a	a	a	b	
5-13weeks	1.72±0.04	1.80±0.01	1.80±0.01	1.83±0.02	1.87±0.02	1.68±0.02	0.01
Efficiency of energy utilization (DE consumed kcal /weight gain g) :							
	A	a	a	b	b	a	
5-13weeks	10.4±0.2	10.3±0.1	10. ±30.1	9.4±0.1	9.7±0.1	10.5±0.1	0.01
Production index (live weight kg /feed conversion X 100 )							
5-13weeks	51.4±1.9	54.8±1.9	54.3±2.1	52.0±1.9	54.8±1.1	50.2±1.8	NS

\* Means within each row having similar letter(s) are not significant different at ( $p>0.05$ ).

\*\* DPT : dried potato tops .

\*\*\*Sig. : significance .

The obtained results indicated that the differences in relative weights and pre-slaughter weight of all carcass traits due to the effects of feeding treatments were not statistically significant, all carcass traits slightly changed among treatments without any consistent trend in relative weights at 13 weeks of age (Table 5)

These results agreed with those obtained by Grandi and Angelis (1983), Lebas et al. (1988), Zeweil (1992), Mangood (1994) Ahmed *et al* (1994), Solaiman (1995), Abd El-Lateif (1996), El-Meligy (1996) and Tag-El-Din (1996) who reported that feeding some agriculture by-products in the diets of growing rabbits did not show any negative significant effects on carcass traits.

**Table 5. Means and standard errors ( $\bar{x} \pm SE$ ) of some carcass traits of rabbits at 13 week of age as affected by feeding dried potato tops**

Treatment	control	5%DPT	10%DPT	15%DPT	20%DPT	30%DPT	Sig.
Pre-slaughter wt. g	1972±72	1898±76	1986±115	1788±127	1904±60	1946±46	NS
Blood w. %	3.1±0.4	2.9±0.3	3.1±0.1	3.2±0.2	3.4±0.1	3.0±0.3	NS
Fur w. %	17.9±0.8	17.6±0.6	17.2±0.5	16.0±0.4	16.3±0.2	16.6±0.7	NS
Head w. %	5.3±0.1	6.2±0.2	5.8±0.2	6.1±0.2	5.7±0.1	5.5±0.1	NS
Liver w. %	3.0±0.3	3.1±0.1	3.1±0.1	3.8±0.2	3.3±0.1	3.6±0.1	NS
Carcass w. %	52.7±0.2	53.0±0.3	51.4±0.3	52.3±0.3	52.9±0.4	52.7±0.2	NS
Dressed w. %	61.1±0.2	62.4±0.4	60.3±0.2	62.2±0.8	61.9±0.4	61.8±0.2	NS

The substitution of dried potato tops hay in rabbit diets instead of clover hay at any level resulted in significant differences in respect of the apparent digestibility coefficients and nutritive value (Table 6). Rabbit fed diets contain 5 and 10% DPT recorded the best values of digestibility coefficients of DM, OM, CP, CF and NFE, while, the group fed 15% DPT had the lowest values of these coefficients, however, the group fed 30% DPT was similar to the control group of all apparent digestibility coefficients except EE which was lower. Rabbit fed diets contain 5 and 10% DPT recorded the best nutritive values represented as TDN %, DCP % and DE Kcal/kg, while, the group fed 15% DPT had the lowest coefficients values and, the group fed 30% DPT recorded nutritive values which were similar to those of the control group.

**Table 6. Means\* and standard errors (x ± SE) of apparent digestibility coefficients (%) and nutritive values as affected by feeding dried potato tops**

Traits	Treatment	control	5%DPT	10%DPT	15%DPT	20%DPT	30%DPT	Sig**
<b><i>A.D.coefficients</i></b>								
DM	bc	a	a	c	ab	bc		
	73.65±1.25	77.88±0.19	78.65±0.15	71.68±0.10	75.92±0.55	74.14±0.41	0.01	
OM	bc	a	a	C	ab	Bc		
	74.60±1.20	79.32±0.10	79.62±0.30	72.88±0.17	76.59±0.59	75.64±0.45	0.01	
CP	ab	a	a	b	a	ab		
	79.76±0.87	81.75±0.11	82.99±0.31	76.62±0.24	80.89±0.09	79.96±0.35	0.01	
EE	a	ab	b	c	b	b		
	77.74±1.02	74.81±1.00	71.44±0.10	63.09±0.8	69.89±0.96	70.44±1.70	0.01	
CF	bc	a	a	c	ab	bc		
	42.1±2.3	50.2±0.1	52.1±0.1	36.4±0.7	49.3±1.3	42.3±0.6	0.01	
NFE	b	a	a	b	ab	ab		
	81.18±1.07	86.25±0.19	86.10±0.63	81.45±0.01	82.71±0.53	83.06±0.37	0.05	
<b><i>Nutritive value</i></b>								
TDN %	abc	a	a	c	ab	bc		
	63.44±1.04	66.53±0.12	66.41±0.21	60.79±0.16	63.98±0.50	63.09±0.43	0.01	
DCP %	c	ab	a	d	bc	bc		
	12.29±0.13	12.75±0.10	12.98±0.04	11.81±0.03	12.53±0.01	12.48±0.13	0.01	
DE Kcal/kg	b	a	a	c	ab	bc		
	2798.5±45.32	2913.9±5.12	2931.0±8.62	2681.9±7.82	2823.9±19.02	286.5±22.20	0.01	

\* Means within each row having similar letter(s) are not significant different at (p>0.05).

\*\*Sig. : significance.

## CONCLUSION

The obtained results from this experiment indicate that potato tops hay can be used instead of clover hay up to 30% of the diet without any detrimental effect.

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## تأثير استخدام دريس عرش البطاطس فى علائق الأرناب النامية على الأداء الإنتاجي ومعاملات الهضم وصفات اللحم.

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أجريت هذه الدراسة فى مزرعة الأرناب التابعة لمشروع تحسين إنتاجية الأرناب باستخدام علائق غير تقليدية فى محافظة الدقهلية والمشروع ممول من صندوق البحوث بجامعة المنصورة خلال الفترة من أوائل فبراير حتى نهاية إبريل عام ١٩٩٦ م وكان الهدف من الدراسة بحث إمكانية استخدام دريس عرش البطاطس فى تغذية الأرناب النامية واستخدم دريس عرش البطاطس بمعدلات ٥، ١٠، ١٥، ٢٠، ٣٠% من العليقة كبديل لدريس البرسيم. استخدم فى الدراسة (٦٠) أرناب عمر (٥) أسابيع من سلالة النيوزيلاندى الأبيض قسمت عشوائيا إلى (٦) مجموعات كل منها به (١٠) أرناب، غذيت كل مجموعة بأحد العلائق التجريبية حتى الشبع و تم إسكان الأرناب فى بطاريات من السلك المجلفن فى أقفاص فردية بحيث يمكن حساب استهلاك العلف الضروري وكذلك جمع الروث الفردي أيضا. تم تسجيل البيانات الخاصة بوزن الجسم الأسبوعي - استهلاك العلف أسبوعيا، وفى عمر (١١) أسبوع تم اختيار أربعة أرناب من كل معاملة لإجراء تجربة هضم، وفى عمر (١٣) أسبوع تم ذبح خمسة أرناب من كل معاملة تم اختيارهم عشوائيا، وتم تسجيل بعض بيانات الذبيحة والفضلات. وكانت النتائج المتحصل عليها كما يلي: كان وزن الجسم الحي فى الأرناب المغذاة على كل مستويات دريس عرش البطاطس فى العليقة متساوية تقريبا مع وزن الجسم للكنترول ولا توجد فروق معنوية من عمر ٥-١٣ أسبوع وتحسن متوسط الزيادة اليومية فى الوزن خلال مدة التجربة بدرجة بسيطة وبدون فروق معنوية بين المعاملات والكنترول وكان أفضلها مستوى ١٠% دريس عرش البطاطس. لم تتضح أى فروق معنوية بين المعاملات والكنترول من ناحية الغذاء المستهلك يوميا طوال مدة التجربة. وبالنسبة لمعامل التحويل الغذائى خلال التجربة فقد اختلف بين المعاملات بدرجة معنوية (على مستوى ١%) حيث كانت المعاملة ٢٠% دريس عرش البطاطس أفضل من ناحية التحويل الغذائى مقارنة بالكنترول. كما اختلفت كفاءة تحويل البروتين النسبية معنويا بين المعاملات طوال مدة التجربة حيث أشارت النتائج إلى أن المجموعات التى غذيت على ٣٠% دريس عرش البطاطس كانت أقل من باقى المجموعات بينما كانت المجموعات التى غذيت ١٥، ٢٠% دريس عرش البطاطس أعلى فى كفاءة تحويل للبروتين بالمقارنة بالكنترول، وبالنسبة لكفاءة الاستفادة من الطاقة فقد كانت الفروق معنوية بين المعاملات على مستوى ١% طوال مدة التجربة حيث أشارت النتائج إلى أن المجموعة التى تغذت على ١٥% دريس عرش البطاطس كانت أفضل من الكنترول وباقى المجموعات خلال الفترة من (٥-١٣) أسبوع. أشارت نتائج الدليل الإنتاجى إلى أن المجموعة التى تغذت على ٥، ٢٠% دريس عرش البطاطس كانت أفضل خلال مدة التجربة من ٥-١٣ أسبوع ولم تختلف صفات الذبيحة معنويا بين المعاملات المختلفة. تحسنت معاملات الهضم الظاهري للعناصر الغذائية بدرجة معنوية

فيما عدا المستخلص الإثيرى للأرناب التي غذيت على ٥ ، ١٠% دريس عرش البطاطس في العليقة كذلك القيمة الغذائية ما عدا المعاملة التي تغذت على ١٥% دريس عرش البطاطس فكانت أقل في نسبة البروتين المهضوم والطاقة المهضومة.

**مما سبق يتضح أنه يمكن استخدام دريس عرش البطاطس في عليقة الأرناب النامية بمعدلات تصل إلى ٣٠% بدلا من دريس البرسيم دون حدوث أي تأثيرات ضارة على أداء النمو وصفات الذبيحة ومعاملات الهضم و من الناحية العملية يفضل الا يزيد المعدل عن ٢٠% .**