CASSAVA ROOT MEAL AS POULTRY FEED.

3- Effect of Replacing Yellow Corn with Graded Levels of Cassava Root Meal in Broiler Rations on Carcass Characteristics with Reference to Economical Aspects.

A.E.El-Sherbiny, M.H.Radwan, M.I.EL-Kotoury and A.M.Abbas.

Animal Prod.Dept.Fac.Agric.,Cairo University and
Animal Prod.Res.Inst.Agric.Res.Center, Egypt

The effect of replacing yellow corn (YC) with graded levels of cassava root meal (CRM) being 0,20, 40 and 60% in broiler rations on carcass characteristics along with some economical aspects was studied.

The results of carcass characteristics showed that the substitution of YC with CRM up to 60% in broiler rations had no appreciable effect neither on the dressing percentage of different carcass parts nor on the chemical composition of boneless meat.

The economical possibilty of substituting YC with CRM in broiler rations was studied using the local market prices at 1984. The lower cost of CRM than YC at that time made the 60% CRM more economical. This might enhance the lowering of the ever increasing cost of feeds for poultry in Egypt.

Although much work had been done abroad in feeding cassava root meal to chickens, there was little information available on the influence of cassava diets on carcass quality at time of marketing. There was no indication that different diets containing graded levels of cassava root meal (CRM) exerted any consistent effect on either carcass quality or dressing percentage of broilers.

In the light of increasing the price of yellow corn(YC) the replacing of YC by CRM seems to be at present more attractive than in the past . However, from the economical point of replacing YC with CRM it should be taken into consideration the price of the complementary protein feedstuff. Therefore, this study was designed to find out the most economical level of CRM as a substitute for YC in broiler rations under the local experimental conditions.Moreover, the effect of replacing YC with local cultivated CRM on carcass characteristics was studied.

MATERIAL AND METHODS

The same broiler rations, chicks and experimental techniques of experiment 2 in the previous study (El-Sherbiny et al., 1986) were used to carry out this work.

Slaughter test: At the end of the broiler experiment (8weeks of age), a slaughter test was performed on 24 birds including 6 birds for each treatment (2 birds for each replicate) taken at random . The assigned birds were deprived of feed for 16 hours, after which they were individually weighed, slaughtered to complete bleeding, followed by plucking the feathers. After the removal of head, viscera, shanks, spleen, gizzard liver, heart and reproductive organs, the rest of the body was weighed to determine the dressed weight. The dressed weight included the front part with wings, hind part and neck. The total edible parts included the dressed weight offered to table and the edible organs (i.e. heart, empty gizzard and liver). Dressing percentage was calculated on the basis of live weight. Each of carcass components was proportionate to the live body weight. The abdominal fat was removed from around the rectum and the gizzard ending with the proventriculus. All the fat dissected was weighed and expressed as percent of live weight. Two birds from each replicate having the mean live weight of a replicate were chosen before slaughtering , then examined for fleshing ability. The flesh for the front part (breast and neck)as well as hind part (thigh) was separated from bones and weighed out. Representative samples of breast as well as thigh were taken, minced to be ready for chemical analysis according to the methods of Association of Official Analytical Chemists (1980).

Economic efficiency: To determine the economic efficiency for meat production, the amount of feed consumed during the entire experiment was obtained. The price of experimental rations was calculated according to the price of local market as well as the price of cassava root meal at the time of the experiment.

The total body weight (kg) from each treatment during the experimental period was multiplied by 170 piasters which represents the suitable price of each in local market at the experimental time. The economic efficiency was calculated as described by Bayoumi (1980) as follows:
Economic efficiency = the revenue/price of feed consumption.
The statistical analysis was carried out according to Steel and Torrie (1980).

RESULTS AND DISCUSSION

Effect of replacing YC with graded levels of CRM in broiler rations on carcass characteristics:

The results of slaughter characteristics of male and female Arbor Acres broiler chicks receiving different experimental diets at 8 weeks of age are listed in Tables 1 and 2. The mean live body weight for males ranged from 1911g to 1676g being the highest for 20% CRM diet and the lowest for 40% CRM diet while that of females ranged from 1566 (0% CRM) to 1146 (20% CRM). This variation is most likely due to the high variability in the response of individual birds to CRM diets. This is clear from the higher value of SE of means.

The blood loss as a percentage of live body weight ranged from 2.52 to 1.55% for male and from 2.36 to 1.48% for female birds receiving starting, growing and finishing diets containing 0, 20, 40 or 60% CRM. No clear effect for dietary CRM level was observed on percentage of blood weight relative to live body weight. In other words the percentages of slaughtered weights after bleeding were nearly similar among treatments. The slight differences might be due to the slaughter technique.

Similarly, the feather percent ranged from 8.66 to 7.04% for male and from 8.00 tp 6.48% for female birds indicating that there was no treatment effect on plucked weights.

Table 1: Average percentage of the parameters of slaughter test relative to live weight of male and female birds of different treatments at 8 weeks of age.

Level of CRM in ration %	Repli-cates	(A) male live body wt.(g)	% from live body weight (A)							(B) female live body wt.(g)	% from live body weight (B)						
			Blood loss	Feather	Dressing	Front part	Hind part	Fleshing	Bones		Blood loss	Feather	Dressing	Front part	Hind part	Fleshing	Bones
0.0	1	1815	1.76	7.38	69.09	26.89	24.93	51.82	17.27	165 1	1.15	6.72	66.75	26.20	25.11	51.30	15.44
	2	2092	1.29	8.03	65.20	24.74	23.68	48.42	16.78	1619	2.10	10.07	62.11	26.08	24.41	49.49	11.62
	3	1751	1.60	8.40	65.68	25.98	27.58	53.57	12.11	1428	1.68	5.88	66.18	28.61	25.60	54.20	11.97
	Mean	1886	1.55	7.94	66.66	25.87	25.40	51.27	15.39	1566	1.64	7.56	65.01	26.96	25.04	51.66	13.01
	±S E	104.60	0.13	0.30	1.22	0.62	1.15	1.51	1.64	69.49	0.27	1.28	1.46	0.82	0.34	1.37	1.22
20	1	2071	2.61	6.62	65.67	24.63	26.36	51.99	14.68	1455	2.13	7.28	66.05	26.91	24.40	51.31	14.74
	2	1900	1.58	7.68	66.89	22.45	24.08	46.53	20.37	1050	1.71	8.19	64.10	22.57	21.57	44.14	19.95
	3	1762	2.04	6.81	63.62	22.76	23.61	46.37	17.25	932	1.50	3.97	64.70	20.39	22.64	43.02	21.67
	Mean	1911	2.08	7.04	65.39	23.28	24.68	48.30	17.43	1146	1.78	6.48	64.95	23.29	22.87	46.16	18.79
	±S E	89.37	0.30	0.33	0.95	0.68	0.85	1.85	1.64	158.37	0.18	1.28	0.58	1.92	0.82	2.60	2.08
40	1	1700	2.82	7.35	67.06	22.94	24.41	47.35	19.71	1522	1.71	7.75	67.74	25.62	24.87	50.49	17.25
	2	1618	2.22	10.63	61.30	24.32	23.36	47.68	14.12	1625	2.95	7.94	64.98	25.60	23.26	48.86	13.91
	3	1710	2.51	8.01	62.16	24.74	23.39	48.13	14.04	1452	2.41	7.37	65.98	25.62	26.31	51.93	14.05
	Mean	1676	2.52	8.66	63.67	24.00	23.72	47.72	15.96	1533	2.36	7.69	66.23	25.61	24.81	50.43	15.07
	±S E	29.14	0.17	1.00	1.70	0.54	0.34	0.23	1.88	50.24	0.36	0.17	0.81	0.007	0.88	0.89	1.09
60	1	1500	1.53	8.27	65.00	25.47	21.70	47.17	17.57	1578	1.20	8.36	66.41	25.89	23.00	48.39	17.52
	2	1941	2.27	6.70	65.74	27.69	25.96	53.66	12.08	1636	1.71	8.25	65.52	27.14	24.88	52.02	13.51
	3	1744	2.41	7.91	62.73	26.26	21.56	47.82	14.91	1381	1.52	7.38	63.79	26.79	24.80	51.59	12.20
	Mean	1728	2.07	7.63	64.49	26.47	23.07	49.55	14.35	1532	1.48	8.00	65.24	26.61	24.23	50.83	14.41
	±S E	127.55	0.27	0.47	0.91	0.65	1.44	2.06	1.58	77.17	0.15	0.31	0.77	0.37	0.61	0.98	1.60

However, these results showed that blood and feathers were proportional constituents to live weight being unaffected by the treatment.

Concerning the dressed weights relative to live body weight, the values tended to be similar ranging from 66.66 to 63.67% for male and from 66.23 to 65.01% for female birds. However, such values of dressed weight for all treatments agreed with the values of 64.7, 64.06-67.06 and 61.11-65.65% reported by El-Kotoury (1959), Selim (1964) and El-Ghoneimy (1969), respectively.

The boneless front part as a percentage of live body weight ranged from 26.47 to 23.28% for male and form 26.96 to 23.29% for female birds receiving the experimental diets; the percentage difference between the higher and lower value was not exceeding 3.19% for males and 3.67% for females. The boneless hind part gave similar trends where the percentages ranged from 25.40 to 23.07% for males and from 25.04 to 22.87% for females.

No appreciable effect was observed on the percentage of the fleshing weight as a result of feeding different levels of CRM.

Concerning the giblets weight relative to live weight (Table 2), the value ranged from 4.91 to 4.06% for male and from 5.55 to 4.54 for female birds. For most instances, liver weights relative to live body weight were higher than those of gizzard, spleen and heart percentages. However, the values of different treatments and sexes were generally similar to those of El-Helaly (1983).

The percentage of abdominal fat as a percent of live body weight (Table 2) ranged from 1.58 to 1.09% for male and from 2.11 to 1.35% for female birds receiving the tested diets being higher for females rather than males. It was noticed that the birds fed on CRM diets showed generally lower percentages of abdominal fat than that of the YC diet (0.0% CRM). This might be due to the less utilization of energy from CRM than that from YC.

Table 2: Average percentage of the parameters of edible organs relative to live body weight of male and female birds of different treatments at 8 weeks of age.

Level of CRM in ration %	Replicates	(A) male live body wt(g)	% from live body weight (A) Giblets: Liver	Gizzard	Spleen	Heart	Total	Abdominal fat	Head and neck	Total edible parts	(B) female live body wt.(g)	% from live body weight (B) Giblets: Liver	Gizzard	Spleen	Heart	Total	Abdominal fat	Head and Neck	Total edible parts
0.0	1	1815	1.93	1.80	0.16	0.45		1.22	6.12	80.77	1651	2.06	2.13	0.17	0.71		1.89	6.73	80.44
	2	2092	1.72	1.74	0.11	0.46		1.70	7.93	78.69	1618	2.12	1.79	0.23	0.66		2.49	8.39	76.20
	3	1751	1.84	1.43	0.12	0.41		1.81	6.78	78.07	1428	2.26	1.80	0.23	0.37		1.95	6.14	78.92
	Mean	1886	1.83	1.66	0.13	0.44	4.06	1.58	6.94	79.18	1566	2.15	1.91	0.21	0.58	4.85	2.11	7.09	78.52
	±S E	104.6	0.06	0.11	0.015	0.015	0.16	0.18	0.53	0.82	69.49	0.06	0.11	0.02	0.11	0.12	0.19	0.67	1.24
20	1	2071	1.99	2.01	0.23	0.48		1.07	7.20	78.66	1455	1.92	1.99	0.31	0.49		1.57	6.16	78.49
	2	1900	2.05	1.78	0.22	0.41		1.45	6.78	79.58	1050	4.04	2.02	0.23	0.68		1.28	7.65	80.00
	3	1762	2.38	1.78	0.29	0.47		1.64	6.83	77.01	932	2.38	1.62	0.34	0.63		1.19	7.15	78.00
	Mean	1911	2.14	1.86	0.25	0.45	4.70	1.39	6.94	78.42	1146	2.78	1.88	0.29	0.60	5.55	1.35	7.00	78.83
	±S E	89.37	0.12	0.08	0.02	0.02	0.13	1.17	0.13	0.75	158.37	0.64	0.13	0.03	0.06	0.71	0.11	0.44	0.60
40	1	1700	1.98	2.04	0.16	0.50		1.04	6.70	79.47	1522	2.29	1.95	0.19	0.49		1.15	6.22	80.03
	2	1618	2.46	2.03	0.25	0.57		1.47	6.57	75.15	1625	2.09	1.60	0.17	0.47		1.46	6.03	76.80
	3	1710	2.20	1.92	0.18	0.42		2.04	6.04	74.97	1452	1.97	1.83	0.17	0.41		1.57	5.83	77.75
	Mean	1676	2.21	2.00	0.20	0.50	4.91	1.52	6.44	76.53	1533	2.12	1.79	0.17	0.46	4.54	1.39	6.03	78.19
	±S E	29.14	0.41	0.04	0.03	0.04	0.20	0.29	0.20	1.47	50.24	0.09	0.10	0.003	0.02	0.20	0.13	0.11	0.96
60	1	1500	1.97	1.86	0.15	0.54		1.17	6.77	77.47	1578	2.12	2.29	0.23	0.56		1.27	6.86	83.20
	2	1941	2.46	1.93	0.16	0.45		1.62	6.31	78.67	1636	1.89	1.98	0.27	0.56		2.63	5.93	78.89
	3	1744	2.26	2.21	0.15	0.48		0.47	7.04	75.34	1381	2.16	2.09	0.30	0.38		1.71	5.96	76.39
	Mean	1728	2.23	2.00	0.15	0.49	4.87	1.09	6.71	77.16	1532	2.06	2.12	0.30	0.50	4.98	1.87	6.25	79.49
	±S E	127.55	0.14	0.11	0.003	0.02	0.18	0.33	1.73	0.79	77.17	0.08	0.09	0.02	0.06	0.14	0.40	0.30	1.99

No remarkable effect on the total edible parts was observed among the birds receiving the experimental diets neither in male nor in female birds.

However, it could be concluded from these results of slaughter test and some carcass measurements that substitution of yellow corn with cassava root meal up to 60% in broiler ration has no appreciable effect on the dressing percentage of different carcass parts.

The chemical composition for both fresh and dry flesh of Arbor Acres broiler chicks fed on different levels of CRM are summarized in Table 3.

Concerning the effect of treatment on moisture content for breast and thigh tissues of chicks, data showed that the percentages of moisture ranged from 69.10% (60% CRM) to 65.86% (0.0% CRM) for breast and from 67.83% (60% CRM) to 66.30% (0.0% CRM) for thigh samples of experimental birds. This indicated that both breast and thigh samples of birds fed on 60% CRM rations contained more moisture,but not significant, than the other treatments

The percentage of CP ranged from 23.76% (0.0% CRM) to 21.28% (60% CRM) and from 22.12% (0.0% CRM) to 19.97% (60% CRM) for breast and thigh, respectively on fresh basis. The values on DM basis ranged from 69.54% (0.0%CRM) to 68.40% (20% CRM) for breast and from 65,76% (0.0% CRM) to 62.27% (60% CRM) for thigh. The statistical analysis showed that there were no significant differences among different treatments neither on fresh basis nor on DM basis.

The percentages of fat content ranged from 9.26%(0.0% CRM) to 8.48% (60% CRM) and from 11.18% (60% CRM) to 10.43% (20% CRM) for breast and thigh, respectively on fresh basis. On DM basis the values ranged from 28.12% (20% CRM) to 27.02% (40% CRM) and from 34.57% (60% CRM) to 30.85% (0.0% CRM). However, the differences among different treatments were not significant indicating that replacing CRM with YC at different levels in broiler rations had no clear effect on carcass fat content. It was clear that the boneless meat of the hind parts (thigh) contained higher fat content, but lower

Table 3: Carcass analysis of Arbor Acres broiler chicks fed on different levels of CRM[a].

Item %	Samples	Levels of CRM % 0.0 Fresh basis	0.0 DM basis	20 Fresh basis	20 DM basis	40 Fresh basis	40 DM basis	60 Fresh basis	60 DM basis
Moist.	Breast ($\bar{x}$)	65.86	-	68.62	-	68.00	-	69.10	-
	±S E	2.89		1.12		1.84		1.18	
	Thigh ($\bar{x}$)	66.30	-	67.50	-	67.32	-	67.83	-
	±S E	2.53		1.02		1.25		3.09	
CP	Breast ($\bar{x}$)	23.76	69.54	21.45	68.40	22.06	69.04	21.28	68.93
	±S E	2.18	1.30	0.84	2.06	1.08	2.54	0.81	1.55
	Thigh ($\bar{x}$)	22.12	65.76	20.92	64.40	20.99	64.40	19.97	62.27
	±S E	1.76	2.76	0.67	1.40	1.08	3.73	1.82	1.79
Fat	Breast ($\bar{x}$)	9.26	27.20	8.84	28.12	8.72	27.02	8.48	27.39
	±S E	0.78	1.36	0.80	2.15	1.20	2.64	0.64	1.44
	Thigh ($\bar{x}$)	10.44	30.85	10.43	32.06	10.48	31.90	11.18	34.57
	±S E	1.31	2,78	0.62	1.34	1.48	3.83	1.34	1.84
Ash	Breast ($\bar{x}$)	1.12	3.26	1.09	3.48	1.22	3.94	1.14	3.68
	±S E	0.11	0.13	0.07	0.18	0.10	0.35	0.11	0.35
	Thigh ($\bar{x}$)	1.14	3.39	1.15	3.54	1.21	3.70	1.02	3.16
	±S E	0.66	0.15	0.06	0.13	0.07	0.25	0.13	0.18

a= Differences between means within a row were insignificant ($P<0.05$). Values represent the mean ($\bar{x}$)±SE of six samples of each treatment.

protein than those of the front part (breast). These results were in agreement with those reported by Selim et al. (1974) and Salmon (1979).

The results of ash content showed that the difference between the higher and lower values was not exceeding 0.13 and 0.19% for breast and thigh samples on fresh basis, respectively and not exceeding 0.68 and .0.54% for breast and thigh samples on DM basis, respectively. No significant differences were found among the ash content of different treatments. Therefore, the results generally indicated that substituting yellow corn with graded levels of cassava root meal up to 60% in broiler rations did not affect the chemical composition of boneless meat.

The results agree with that of Obioha (1975) in all parameters of broiler chicks carcass quality except the abdominal fat which was increased with increasing proportion of cassava in 5 diets varying in maize: cassava ratio.

However it is in agreement with those of many investigators who used balanced broiler rations containing different levels of CRM. Khajarern and Khajarern (1977) reported that graded levels of CRM (0, 10, 20, 30, 40, and 50%) for replacement of corn in broiler rations did not exert any effect on carcass grade and dressing percentage at 9 weeks of age.

Adeyanju and Pido (1978) incorporated levels of 0, 10, 20 and 30% fermented cassava peels in broiler diets. At the 9th week of age, slaughter test showed insignificant increases in giblet weight and abdominal fat as the level of cassava increased.

In 1980, Eshiett and Ademosun found no significant differences in carcass characteristics and the DM,CP and Fat content of livers at 10 weeks of age when broilers were fed diets containing 0, 15, 30 or 45%CRM.

Effect of replacing yellow corn with graded levels of CRM in broiler rations on some economical aspects:

Generally, the feeding cost, the length of the growing period and the final body weight are among the most important factors involved in the achievement of maximum efficiency in meat production. Accordingly, the economical efficiency of any product could be calculated from input-output analysis based mainly upon the total feeding cost per total number of kilograms live body weight sold and the current selling price of live weight/kg.

Economic parameters of the present rations are presented in Table 4. It should be pointed out that the calculation herein depends on the average price at 1984.

The average price of one kg live weight was 170 PT in local market, and the price of one kg of each of the experimental rations was 38.28, 36.12, 34.02 and 31.99 PT for diets containing 0,20,40 and 60% CRM, respectively. Therefore, the economic efficiency (E.E f) could be easily calculated.

It is worthy to note that the E.Ef. value of the control diet (0.0% CRM) was taken as a standard for comparison between treatments. The control diet without CRM substitution for YC recorded the highest total feed cost of 147.19 PT and the highest total revenue of 299.71 PT, therefore the net revenue was 152.52 PT. The E.Ef. $\left(\frac{\text{Net revenue PT}}{\text{Total feed cost PT}}\right)$ of the control diet was the lowest value being 1.04 among the other treatments.

Concerning the economic parameters of birds fed on diets containing 20, 40, and 60% CRM, the E.Ef. were 1.05, 1.14 and 1.19, respectively. The corresponding relative economic efficiency were 101 . , 110 and 114 indicating the superiority of 60% CRM ration in its economical value. Generally, it seems that increasing CRM level in the ration up to 60% was associated with increasing the values of E.Ef.

This study shows sensible differences in the economic parameters between chicks fed CRM rations and those of control ration. The lowest feed cost, the least cost per kg feed,

Table 4: Effect of replacing yellow corn with graded levels of CRM in rations on the economic value of broilers.

Item	Treatments			
	0.0% CRM	20% CRM	40% CRM	60% CRM
Average feed consumed (kg/bird)	3.845	3.909	3.902	3.929
Price/kg feed (PT)[1]	38.28	36.12	34.02	31.99
Total feed cost (PT)	147.19	141.19	132.75	125.69
Average live weight (kg/bird)	1.763	1.706	1.675	1.616
Price/kg live weight (PT)[2]	170	170	170	170
Total revenue (PT)	299.71	290.02	284.75	274.72
Net revenue (PT)	152.52	148.83	152.00	149.03
Economic efficiency (E.Ef)[3]	1.04	1.05	1.14	1.19
Relative economic efficiency[4]	100	101	110	114

1) According to the price of different ingredients available in A.R.Egypt at the experimental time.

2) According to the local market price at the experimental time.

3) Net revenue per unit cost.

4) Asuming that the relative E.Ef of control diet (0.0% CRM) equals 100.

but the highest economic efficiency were obtained from chicks fed the 60% CRM level which, thus, appeared to be the most economical ration.

The economic benefit from CRM rations compared with the control ration might be related to the price differential between corn and cassava root meal. At the time of carrying out this experiment, the total cost of imported yellow corn was 294 LE/ton, while that of imported CRM (in the form of pellets) was only 140 LE/ton according to the data of Animal Production Institute, Ministry of Agriculture. Under our local condition in Egypt, it was found that the cost of producing one ton of dried CRM was 100 LE as reported by Vegetable Research Section, Horticulture Research Institute, Ministry of Agriculture. Compared with the yellow corn price, the price of CRM was about 52% lower in case of imported CRM, while it was about 66% lower in case of local CRM production.

A considerable decrease in feed cost due to incorporation of CRM into grower/finisher broiler rations was also reported by Obioha (1975). However, Chou and Müller (1972) reported that CRM could economise broiler rations when its price was about 30% lower than the price of maize. Pido et al., (1979) reported that it was economical to incorporate up to 50% fermented CRM into broiler rations.

Khajarern et al. (1980) suggested that CRM could be economically substituted for maize in broiler diets when the price of cassava was somewhat lower than 60% of that of maize.

Khajarern and Khajarern (1984) evaluated the economical feasibility of cassava based feeds in 15 feeding trials including some 3320 broilers, 1600 replacement birds, 768 layers and 182 growing-finishing pigs. They reported that cassava could replace cereals only when its price was 50% lower than that of cereals.

Since cassava at present is relatively cheaper than yellow corn, the results of this study appear to recommend the use of CRM at levles up to 60% as an economic substitute for yellow corn in broiler ration in Egypt. This might enhance the lowering of the ever increasing cost of feeds for poultry in the country.

REFERENCES

Adeyanju,S.A. and Pido,P.P. (1978): The feeding value of fermented cassava peel in broiler diets. Nutrition Reports International 18:79.

Association of Official Analytical Chemists (1980): Official Methods of Analysis. 13th ed. Published by A.O.A.C. Benjamin Franklin Station, Washington,D.C.

Bayoumi,S.B. (1980): Effect of different rations on egg production for breeding hens. M.Sc.Thesis, Fac. Agric. Kafr-El-Sheikh, Tanta Univ.

Chou,K.C. and Müller,Z. (1972): Complete substitution of maize by tapioca in broiler rations. Proc. Australasian Poult.Sci. Conv.Auckland, New Zealand, pp.149.

El-Ghoneimy,A.Z. (1969): Some chemical studies on the feedingstuffs from animal sources and their relation to poultry and animal nutrition. M.Sc. Thesis, Fac. Agric., Cairo Univ.

El-Helaly,N.A.H. (1983): The effect of various dietry fat sources and levels on the performance of broiler chicks. M.Sc. Thesis,Fac.Agric., Cairo Univ.

El-Kotoury,M.I. (1959): Economic of feeding for egg and meat production in poultry. Ph.D. Thesis, Fac. Agric., Cairo Univ.

El-Sherbiny,A.E.; El-Kotoury,M.I.;Radwan ,M.H. and Abbas,A.M. (1986): Cassava root meal as poultry feed.2. Effect of replacing yellow corn with graded levels of cassava root meal on broiler performance . 7th Conf., Egypt. Soc. Anim. Prod., 1986.

Eshiett,N. and Ademosun,A.A. (1980): Sun dried cassava root meal in broiler diets. Nutrition Reports International, 22:343. Edited by Albanase,A.A., Cali.

Khajarern ,S. and Khajarern,J. (1977): Use of cassava as a food supplement for broiler chicks. In:Proc. of the fourth symp. of the International Society for Tropical Root Crops, held at CIAT, Cali,Colombia, 1-7 August, Ottawa,IDRC, p. 246. Edited by Cook,J.MacIntyre,R. and Graham,M.

Khajarern,S. and Khajarern,J. (1984): The economics and public acceptance of cassava based rations in Thailand. Trop.Anim.Prod.,9: 129.

Khajarern,J.; Khajarern ,S. and Bunsiddhi,D. (1980): The substitutional equation in replacing cassava meal for maize in broiler rations. Main Library, Kasetsart Univ. Bangkhen, Bangkok, 10900, p. 57.

Obioha,F.C. (1975): The grain replacement value of processed cassava in broiler finisher rations. Nigerian J.Anim. Prod. 2:277.

Pido,P.P. Adeyanju,S.A. and Adegbola,A.A. (1979): The effect of graded levels of fermented cassava meal on broilers. Poult.Sci.58:427.

Salmon,R.E. (1979): Slaughter losses and carcass composition of the medium white turkey. Br.Poult.Sci.,20: 297.

Selim,A.D. (1964): A comparative study in meat and egg production in the fowl.M.Sci.Thesis. Fac. Agric., Cairo Uviersity.

Selim,A.D.; Abdel-Salam,F.E.; Aboul -Seoud,A.A. Abou-Raya, A.K. and Ghany,M.A. (1974): Effect of variable dietary energy and protein with holding the calorie protein ratio on growing chicks. Egypt.J.Anim.Prod. 14:41

Steel, R.C.D. and Torrie, J.H. (1980): Principles and Procedures of Statistics. 2nd Edit. McGraw-Hill Book Co. Inc., New York.

****

٣) تأثير احلال مسحوق جذور الكاسافا محل الذرة الصفراء على صفات الذبيحة وبعض الدراسات الاقتصادية لكتاكيت اللحم

آمال السيد الشربيني ، محمد حسن رضوان ، محمد ابراهيم القطورى وأحمد محمود عباس .
قسم الانتاج الحيوانى - كلية الزراعة - جامعة القاهرة ،ومعهد بحوث الانتاج الحيوانى بالدقى .

الغرض من هذا البحث هو دراسة تأثير احلال مسحوق جذور الكاسافا محل الذرة الصفراء (صفر و ٢٠ و ٤٠ و ٦٠ ٪ من الذرة) فى العلائق على صفات الذبيحة وبعض الدراسات الاقتصادية للكتاكيت اللحم .

لم تتأثر مواصفات الذبيحة (التصافى والأجزاء المأكولة والتحليل الكيميائى للحم) بوجود الكاسافا حتى مستوى ٦٠ ٪ من الذرة الصفراء فى عليقة كتاكيت اللحم .

أجريت الدراسة الاقتصادية لبحث امكانية احلال مسحوق درنات الكاسافا محل الذرة الصفراء فى علائق كتاكيت اللحم وذلك باستخدام أسعار السوق المحلية خلال فترة التجربة (عام ١٩٨٤م) . وقد أدى انخفاض سعر مسحوق درنات الكاسافا فى ذلك الوقت بالمقارنة بسعر الذرة الصفراء الى جعل مستوى ٦٠ ٪ مسحوق درنات كاسافا (٣٧ ٪ من العليقة) هو الأفضل من الناحية الاقتصادية . ويستنتج من ذلك أن استخدام مسحوق درنات الكاسافا فى علائق الدواجن فى مصر يمكن أن يقلل من تكاليف التغذية اذا كان سعر مسحوق الكاسافا أقل منه فى الذرة الصفراء . وبالتالى هذا يؤدى الى انخفاض أسعار الدواجن ومنتجاتها فى البلد .

***