Benefits of Poultry Biotechnology: Respective on Poverty Reduction and Food Security in Rural Sudan

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Goals:

1. The impact and significant of poultry biotechnology on food security, poverty reduction, household's health, income, consumption and environment in the rural areas.
2. The impact of poultry biotechnology in enhancing crop production in terms of applying the poultry manure as organic fertilizers.
3. The consciousness of farmers and consumers about poultry biotechnology.

Methodology:

- Study depend heavily on the primary data. conducted in irrigated farm (Gezira State).
- Descriptive and correlation analysis were performed
- The LP are analyzing by using GAMS Soft ware program to built the poultry model within the farmer rotation.

3. Results and Discussion

Table 1: Impact of Socioeconomic Factors on the Eggs Biotechnology

Variables	Gender	Education	HC	Income	Health	Eggs Biot
1. Gender Pearson correlation Sig. (2-tailed)	1 -					
2. Education Pearson correlation Sig. (2-tailed)	0.136 0.122	1 -				
3. HC Pearson correlation Sig. (2-tailed)	0.106 0.264	0.712** 0.00	1 -			
4. Income Pearson correlation Sig. (2-tailed)	-0. 667* 0.004	0.865** 0.00	0.638** 0.00	1 -		
5. Health Pearson correlation Sig. (2-tailed)	0.155 0.310	0.057* 0.012	-0.021 0.825	0.566* 0.211	1 -	
6. Eggs Biot Pearson correlation Sig. (2-tailed)	- 0.256* 0.100	0.822** 0.000	0.312* 0.045	0.291* 0.024	0.566* 0.012	1 -

Source: Author's calculation. Note: HC= Home consumption.

** Correlation is significant at the 0.01 level (2- tailed).* Correlation is significant at the 0.05 level (2- tailed).

3.1 Impact of Poultry Biotechnology on the Income, Poverty Reduction and Food Security

- GM eggs contributed about 32.4% of the total farmer income.
- The home consumption of eggs is increased by 67%.
- kilocalories of the food items of the person is increased by 30 calories .
- Per-capita income is increased by 2.5 SDG.
- Poultry biotechnology created the employment for landless farm workers (85%), rural non- agricultural (8%) and urban labour (7%).

3.2 Integration of Poultry Biotechnology in the Farm

The study assumed that the poultry farm can be integrated in the crop rotation manner with one feddan for the farm constructed on 200 laying hens.

The LP results explained that:

- The optimal crop plan is vegetables crop.
- The area of expected poultry production was increased from one feddan to 2 faddans.
- The optimal returns of the crops production was greater than the actual returns by 21%.
- The number of hens still unchanged (200 laying hens) while the resources are efficiently used as the quantities of them were dropped in the optimal plan

4. Conclusions

- ✓ **The poultry production plays a significant role in human nutrition and as a source of income in the rural areas.**
- ✓ **The poultry biotechnology would increase smallholder agricultural productivity, labor job opportunities, increase food supplies, reduce malnutrition and improve the livelihoods of the poor**
- ✓ **Adoption of poultry biotechnology can be seen as a major element in the promotion of the Sudanese agricultural development**