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AFRICA SUSTAINABLE LIVESTOCK 2050

Livestock production systems spotlight

EGYPT

Cattle and buffaloes and poultry sectors

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Cattle and buffaloes, and poultry sectors in Egypt

1. Introduction

Policies and investments in the livestock sector are effective when they take into account the multiple dimensions of livestock farming. These dimensions include monetary and non-monetary benefits for producers and other actors along the value chain, such as income, food, draft power and insurance. They also include public health and environmental dimensions, such as the availability of protein for good nutrition and health, the use of dung for fertilizing soil, or the negative impacts of zoonotic diseases on public health and the consequences of overgrazing for the environment.

A multi-stakeholder multi-disciplinary approach is a precondition for designing and formulating effective livestock policies and investments, which consider and manage the trade-offs inherent in the multiple dimensions of the sector. When stakeholders, looking at the livestock sector from different perspectives, share a common understanding of the livestock production systems – agreeing on common descriptions of the production systems and sub-systems – they can arrive at constructive conclusions about the pros and cons of alternative policy actions and investments.

This brief presents a snapshot of bovine (dairy, beef) and poultry meat production systems in Egypt as agreed by key national stakeholders affected by the livestock sector, and notably the Ministry of Agriculture and Land Reclamation, the Ministry of Environment, and the Ministry of Health. It is the first time these stakeholders have ever embarked in a multi-disciplinary process to jointly define cattle and buffaloes (dairy and meat), and poultry meat production systems. This process involved a three-step approach:

- Based on their knowledge and expertise, the stakeholders agreed on a narrative description of the different livestock production systems.
- Stakeholders validated and improved cattle and buffaloes, and poultry distribution maps of the FAO Gridded Livestock of the World (GLW) and identified, for each administrative unit, the relative proportions of the different production systems.
- Stakeholders have assembled datasets, policy documents, published and unpublished literature on cattle and buffaloes (dairy and beef), and poultry meat production systems and generated statistics on the different production systems. Geographic variables have allowed "adding-up" information from different sources.

This approach, while not perfect, has three strengths:
- It is stakeholder driven, stakeholders ex-ante define the different livestock production systems.
- It allows "adding-up" of scattered information using geographical locations as the common denominator.
- Its outputs can easily be visualized through combining maps and bar charts.

2. Why poultry and cattle and buffaloes production systems?

As part of the implementation of Africa Sustainable Livestock 2050[1], the ministers responsible for livestock, health and the environment have engaged stakeholders to assess the current and long-term impact of livestock production systems on the economy and people's livelihoods, on public health and on the environment. To start with, they have agreed to focus on two livestock sectors. Cattle and buffaloes (dairy, beef), and poultry meat were selected because of their relevance for the national

[1] http://www.fao.org/ag/againfo/programmes/en/ASL2050.html

economy and people's livelihoods, their status as a priority in the current policy framework, and their anticipated growth in the coming decades.[2]

3. Poultry production in Egypt: a snapshot

Poultry is one of the main agricultural industries in Egypt. It contributes 10 percent of agricultural value added, with the country producing over 1 million tons of poultry meat. Per capita consumption is approximately 15 kg of poultry meat per year[3]. The sector is highly heterogeneous, comprising of large integrated, specialized producers and at least 11 million households keeping chickens and other poultry. Stakeholders have identified two main poultry production systems in Egypt, intensive/commercial and extensive/household.

3.1. The intensive poultry production system

The intensive poultry production system is varied and includes three sub-sectors differentiated by husbandry practice and market integration, namely small scale producers (sector 3), medium-scale poultry farms (sector 2) and vertically integrated poultry producers (sector 1). Although with varying degrees of biosecurity and intensity, all intensive poultry producers utilize an all-in all-out system, with batches of baladi improved or exotic cockerels and chickens entering and exiting the farm in unison on a cycle basis, generally 4-5 cycles a year for small scale and 7-8 cycles for integrated large farms.

- There are approximately 30 000 registered intensive poultry farms, and approximately the same number of unregistered farms. The majority, almost 80 percent, are located in Lower Egypt[4].
- The flock size varies from 5 000 at the small-scale, up to 100 000 for integrated producers. Over 80 percent of Egypt's poultry are kept in intensive systems.
- While all producers aim to utilize modern husbandry practices for high efficiency, in most cases only largely integrated farms can afford the investments needed to adopt modern technologies and practices. Outbreaks of avian influenza, for example, occur in intensive poultry systems too.
- Intensive producers have regular programs for control of endemic diseases such as salmonellosis and other bacterial and parasitic diseases of socio-economic importance.
- The intensive poultry system contributes about 84 percent of total poultry meat production in Egypt – about 850 000 tonnes per year. The average dressed weight is around 1.3 kg per bird[3].
- Sector 1 and 2 intensive producers utilize formal marketing channels and their birds reach consumers as dressed and processed chickens in large and small retail outlets. Conversely, small-scale intensive producers tend to sell live birds through informal marketing channels.

The intensive poultry system is pivotal for the supply of affordably-priced animal protein to the Egyptian population. However, it is highly dependent on importing feed – mainly maize and soya bean – and other inputs and equipment, which makes consumer prices highly volatile. At the same time, poor enforcement of existing laws and regulations makes the sector prone at outbreaks of epidemic diseases and at risk of polluting the environment.

3.2. The extensive poultry production system

The extensive poultry production system includes rural, peri-urban, or urban backyard, balcony or roof top systems. Birds may be confined or free range; they mainly scavenge for food though some feed supplementation can be provided. The size and bird density varies between farms. Family members are responsible for all production activities, and they do not hire permanent or causal labour.

[2] ASL2050 (2017) *Country brief. Egypt.* FAO, Cairo.
[3] Bulletin of estimates Agriculture Income 2015, Economic affairs sector, MALR
[4] Statistics of poultry production, Economic affairs sector, MALR.

- The exact numbers of farms and birds in extensive poultry production system are not accurately known, estimates derived from the census of households in urban and rural areas, and literature review, indicate that about 1.4 million individuals and approximately 11 million households are involved in extensive poultry production[5].
- The flock size varies from 30 up to 1000 birds, usually indigenous breeds.
- Extensive livestock producers rarely access veterinary services and when they do, the main sources of service are private veterinarians and/or owners of veterinary medicinal shops in villages. As a consequence, extensive producers rarely vaccinate their birds with regularity, with the exception of those keeping relatively large flocks. Vaccination, when done, is against main viral diseases such as highly pathogenic avian influenza (HPAI), Infectious Bronchitis (IB) and Newcastle disease.
- The extensive poultry system contributes about 25 percent of total poultry meat production per year. The average dressed weight is about 1.1 kg per bird.
- Extensive producers mainly raise birds for home consumption, with the surplus being sold in live bird markets or to neighbours. Extensive producers with larger flocks sell their birds to traders/brokers, whose in turn sell them to poultry shops in urban areas.

Poultry rearing is critical for the less well-off, as it represents a small but constant income-generating activity and an affordable source of animal protein for household members. The ongoing intensification of extensive poultry system is contributing to an increased demand and price for inputs such as one day-old-chicks, feed, housing, husbandry management and healthcare services which, while increasing productivity, are also reducing the profitability of backyard poultry systems.

4. Cattle and buffaloes, production in Egypt: a snapshot

The bovine sector is well integrated with cropland since Egypt has limited natural pastures. Female cattle and buffaloes are used for milk production, while male animals and infertile females are fattened for meat. Cattle and buffaloes make up about 23 percent of total agricultural value, a total of 73.5 billion EGP of which 66 percent is meat production and 34 percent milk production. Per capita consumption in 2015 was approximately 11 kg of red meat and 59 kg milk[6]. The bovine production system is highly heterogeneous, comprising of large integrated specialized producers along with small scale farms and households keeping cattle and buffaloes. There are three main cattle and buffalo production systems intensive, semi-intensive and extensive.

4.1. Intensive bovine production system

The intensive bovine production system is characterized by high input and output livestock holdings. The intensive system accounts for over 7 percent of the total beef and dairy cattle and buffalo population of the country. It includes dairy and beef farms of various sizes and types, ranging from ten to many thousands of heads of cattle and buffalo.

- There are approximately 14 390 intensive bovine production system farms registered. Herd size varies from 10 up to over 1 000 heads.
- Exotic breeds are used for milk production and exotic and crossbreeds for beef production.
- Intensive bovine farms have regular access to veterinary services, including mass government vaccination programs against diseases such as foot and mouth disease (FMD), Rift Valley fever (RVF) and lumpy skin disease (LSD) and private supplied vaccinations against other endemic and infectious diseases such as brucellosis.
- Intensive beef and dairy farms produce approximately 84 000 tonnes of meat and 5 million tonnes of milk per year. Almost 90 percent of the milk produced originates in large dairy farms

[5] Statistics year book, CAPMAS, 2015.
[6] Bulletin of estimates Agriculture Income 2015, Economic affairs sector, MALR.

and is sold to processors. Small-scale intensive dairy farmers are either contractors of large dairy farms or sell their products to milk collection centres, which are the source of raw milk for urban dwellers. Beef animals are sold through formal chains to butchers in large cities or directly to slaughter houses.

Intensive beef and dairy production systems are the main source of quality milk and beef for Egyptian consumers. In all cases, production is highly dependent on imported feed ingredients – grains, milling by-products, added vitamins, minerals, fats/oils, and other nutritional supplements.

4.2. Semi-intensive bovine production system

The semi-intensive bovine production system, while utilizing modern production and husbandry practices to some extent, is often disorganized. The number of heads per farm ranges, according to season, between 10 and more than 50. Improved local breeds dominate the semi-intensive system, which produce both beef and milk[7].

- Semi-intensive farms comprise almost 60 percent of the total bovine population. The herd size can range from 10 to more than 50 heads of cattle and buffalo.
- Buffaloes are mainly used for milk production and supply more than 70 percent of raw milk.
- Milk is principally sold as liquid raw milk, with a small percentage processed into homemade cheese, butter and yoghurt. Surplus production supplies large cities through milk collectors and distributors. Few semi-intensive farms are contracted by large milk and milk processing factories.
- Animals are vaccinated during government mass vaccination campaigns against FMD, RVF and LSD. Semi-intensive cattle and buffalo producers depend on private practitioners for emergency and regular veterinary services, with limited access to governmental veterinary services.
- The semi-intensive bovine system produces the majority of meat in Egypt. Fattening of cattle and buffaloes is highly seasonal – dependent on feed availability and religious events – and animals are sold live either directly in livestock markets or to butchers in large cities.

The semi-intensive production system provides a considerable share of the raw milk and meat preferred by consumers in urban Egypt. However, varied production practices, a scattered and unorganized farmer community, limited infrastructure, and unregulated value chains, make production and productivity highly variable, which limit the incentives for farmers to invest in productivity enhancing inputs[8].

4.3. The extensive bovine production system

The extensive bovine production system is characterized by low inputs and low outputs, with farmers keeping herds of between 1 and 10 indigenous cattle and buffaloes as well as some cropland. The extensive system is informal and so statistics are not always robust for this system.

- Households in the extensive bovine production system keep about 33 percent of the total cattle and buffalo population in Egypt[9]. The number of heads per farm ranges between 1 and 10 animals.
- Animals are largely fed with Egyptian clover (berseem), the key forage crop. Though corn leafs (darawa), hay and straw are also common, particularly in the summer.

[7] Country Pasture/Forage Resource Profiles, M. Elnahraway, FAO 2011.
[8] Abou El-Amaiem WE (2014) Milk Value Chain Constraints in Dakahlia Governorate, Egypt. Epidemiol 4: 152. doi: 10.4172/2161-1165.1000152.
[9] Value chain analysis for ruminant sector, 2014, GOVS.

- Milk production is self-consumed, used to feed calves feeding and sold to neighbors or milk collectors. A minor share is processed into local made cheese and ghee for consumption by people in rural and urban areas. Again, these products are both for home consumption or sold in informal markets[10].
- Surplus young calves, bulls and unproductive females are sold in live animal markets. Few animals are slaughtered, except for special occasions such as weddings.
- Cattle and buffaloes are vaccinated during government mass vaccination campaigns against FMD, RVF and LSD and households rarely access other animal health services.

The extensive bovine production system provides a source of income and protein for a large share of households in rural areas. It is a major component of their livelihood. Due to a lack of proper management practices and poor breeding, however, productivity and profitability are low.

5. Conclusion

This brief presents a snapshot of cattle and buffaloes, and poultry meat production systems in Egypt, as described and characterized by the Ministry of Agriculture and Land Reclamation, the Ministry of Health, the Ministry of Environment and other stakeholders such as the general organization for veterinary services, and private field practitioners.

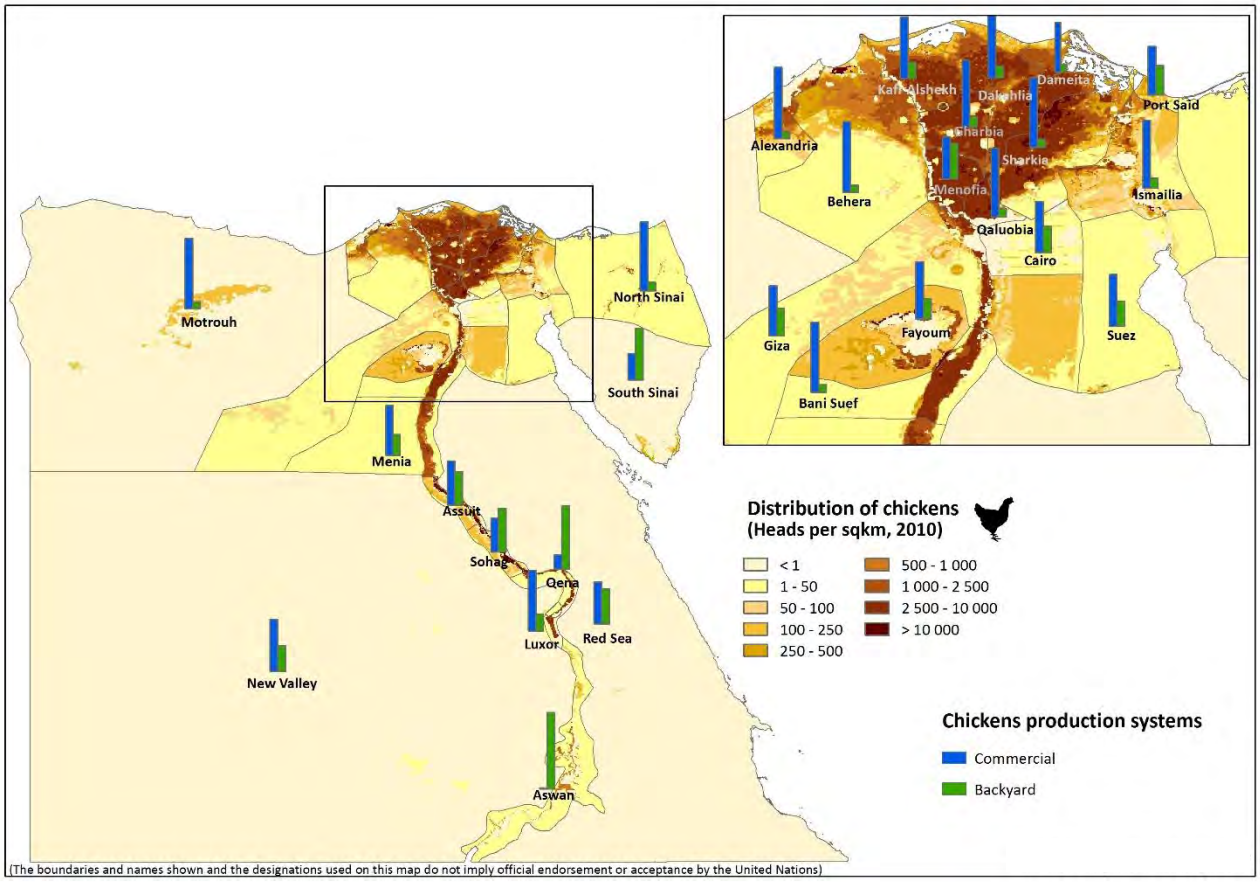
This common understanding of livestock production systems will support multi-sectoral and multi-disciplinary dialogue among stakeholders to appreciate the production, public health and environmental dimensions of livestock and the formulation of coherent and effective sector's policies and investments.

January 2018. The production of this document has been coordinated by Antonio Mele (FAO) and Amira Kamal (FAO) under the guidance of the Members of the ASL2050 Egypt Faso Steering Committee and in consultation with national livestock stakeholders.

[10] Characterization of Milk and Veal Production Chains of buffalo under crop livestock production system in Egypt, M. Radwan, 2016.

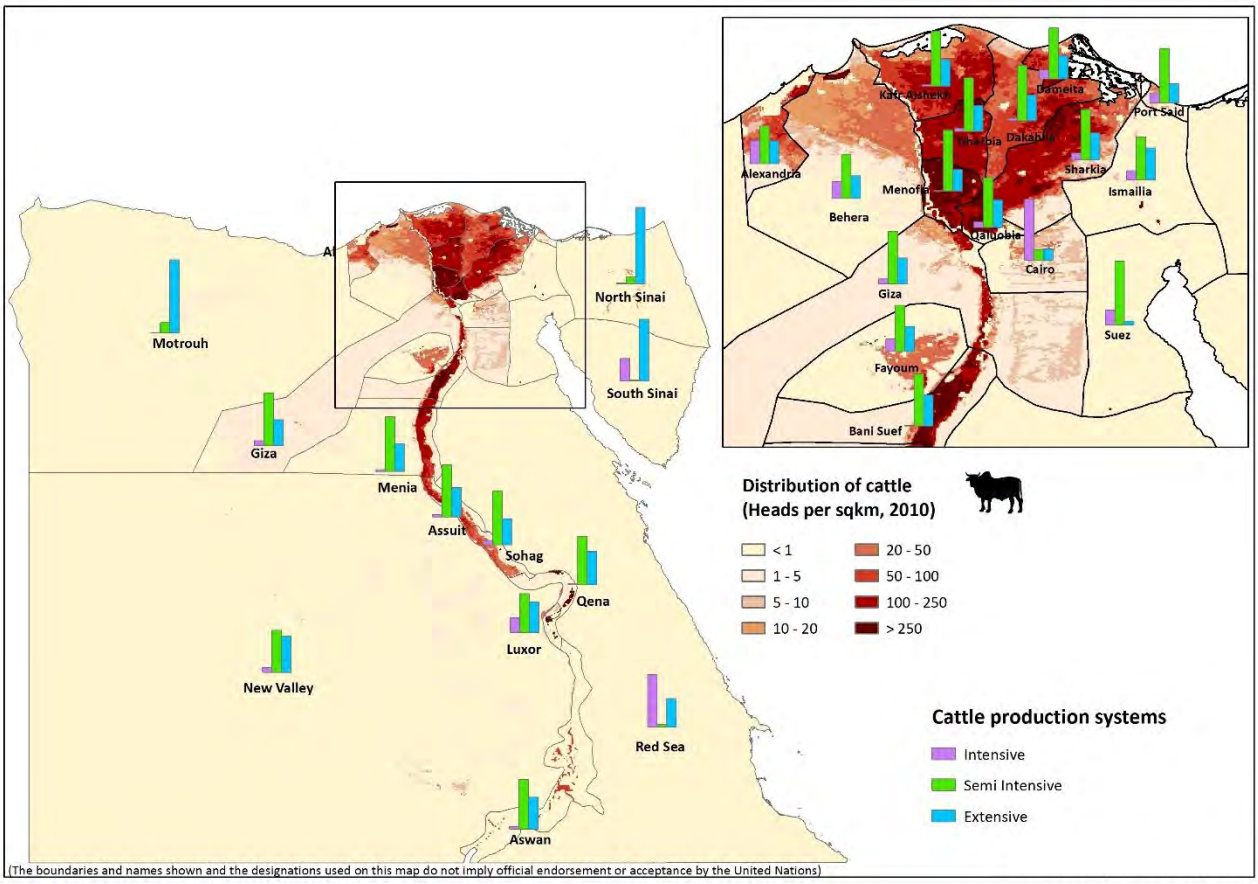
Appendix: maps & tables

Map 1: Chicken density and production system distribution in Egypt



Source: GLW 2010 and expert consultations

Map 2: Cattle and buffalo density and production system distribution in Egypt



Source: GLW 2010 and expert consultations

Table 1: Chicken distribution by production system in Egypt

Ser	Governorates	Number of birds	Proportion by production system (%)	
			Intensive	Extensive
1.	Alexandria	17 398 009	91.6	8.4
2.	Behera	140 518 713	91.0	9.0
3.	Gharbia	74 216 572	86.4	13.6
4.	Kafr Elsheikh	32 580 263	79.0	21.0
5.	Dakahlia	82 230 743	84.5	15.5
6.	Damietta	17 306 097	86.3	13.7
7.	Sharkia	149 983 350	89.6	10.4
8.	Ismailia	21 007 139	87.3	12.7
9.	Port Said	315 625	62.4	37.6
10.	Suez	544 422	67.5	32.5
11.	Menoufia	21 191 421	54.2	45.8
12.	Qaluobia	74 199 540	89.1	10.9
13.	Cairo	4 953 588	65.9	34.1
	Lower Egypt	636 445 482	86.7	13.3
14.	Giza	24 344 337	64.7	35.3
15.	Beni Suef	6 578 682	90.0	10.0
16.	Fayoum	27 543 506	74.0	26.0
17.	Menia	44 857 649	70.4	29.6
	Middle Egypt	103 324 174	71.3	28.7
18.	Assiut	20 698 098	56.8	43.2
19.	Sohag	18 939 382	43.7	56.3
20.	Qena	11 239 899	18.6	81.4
21.	Luxor	5 243 635	78.3	21.7
22.	Aswan	3 959 301	1.3	98.7
	Upper Egypt	60 080 315	43.8	56.2
23.	Matrouh	9 978 239	91.0	9.0
24.	North Sinai	8 263 545	89.1	10.9
25.	South Sinai	487 779	33.6	66.4
26.	New Valley	1 927 927	67.2	32.8
27.	Red Sea	491 479	54.3	45.7
	Border governorate	21 148 969	85.9	14.1
	Total	**820 998 940**	**81.6**	**18.4**

Table 2: Cattle and buffalo distribution by production system in Egypt

Ser	Governorates	Heads of cattle and buffalo	Proportion by production system (%)		
			Intensive	Semi-intensive	Extensive
1	Alexandria	106 743	28.39	44.94	26.67
2	Behera	1 042 308	19.83	53.21	26.96
3	Gharbia	452 191	4.46	64.11	31.44
4	Kafr Elshekh	367 828	1.63	66.22	32.15
5	Dakahlia	407 450	3.45	65.99	30.56
6	Damietta	121 120	11.20	60.87	27.93
7	Sharkia	629 441	8.05	59.63	32.32
8	Ismailia	134 954	11.34	50.66	38.00
9	Port Said	43 223	11.56	65.04	23.40
10	Suez	28 598	18.40	76.48	5.13
11	Menoufia	731 013	1.40	72.60	26.00
12	Qaluobia	288 902	7.33	59.20	33.47
13	Cairo	16 859	72.79	13.04	14.17
	Lower Egypt	4 370 630	9.40	61.23	29.37
14	Giza	234 731	6.12	63.20	30.68
15	Beni Suef	907 107	0.84	61.81	37.35
16	Fayoum	446 437	14.89	54.63	30.48
17	Menia	536 594	1.61	65.01	33.38
	Middle Egypt	2 124 869	4.57	61.26	34.17
18	Assuit	587 876	2.50	62.27	35.22
19	Sohag	403 720	5.20	64.09	30.72
20	Qena	109 233	2.15	58.24	39.61
21	Luxor	87 857	18.10	46.19	35.72
22	Aswan	84 111	3.08	58.74	38.18
	Upper Egypt	1 272 797	4.44	61.16	34.40
23	Matrouh	80 239	0.43	12.10	87.47
24	North Sinai	24 413	0.91	8.16	90.93
25	South Sinai	11 590	25.88	1.43	72.68
26	New Valley	21 9392	6.39	50.48	43.13
27	Red Sea	11 172	62.66	3.26	34.09
	Border Governorates	346 806	7.09	35.46	57.45
	Total	**8 115 102**	**7.26**	**60.13**	**32.62**

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