

Animal Welfare Regulations for Swine Keeping in Israel: a Comparison with the EU Directive 120 of 2008 “Laying Down Minimum Standards for the Protection of Pigs”

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ABSTRACT

In February 2015, Israel approved the new Animal Welfare Law – Animal Protection – “Regulations for Swine Keeping for Agricultural Purposes”, which was implemented since May 2015. In comparison with European Union (EU) Legislation on swine protection (Council Directive 2008/120/EC of 18 December 2008), Israeli Regulations are ameliorative in terms of reduction of days in insemination stalls for gilts and sows; reduction of days in restraint during lactation; available floor area to each animal; pain management and relief in the course of castration, tail docking and corner-teeth clipping.

Keywords: Pigs; Surfaces; Stalls; Farrowing; Castration; Tail; Teeth; Pain; Analgesia.

INTRODUCTION

In September 2012 The Veterinary Services and Animal Health of the Ministry of Agriculture and Rural Development of Israel issued specific “Guidelines for Swine Keeping” (referred to as the “Guidelines”), which entered into force in January 2013 (1). The purpose of the Guidelines was to immediately start the standardization of minimal requirements for pig welfare along with the completion of the legislative process for the approval of a specific Law by the Parliament (The Knesset). The new “Animal Welfare Law – Animal Protection – Regulations for Swine Keeping for Agricultural Purposes, 2015” (the Regulations) was, in fact, then approved in February 2015 and entered into force in May 2015 (2).

General characteristics of swine farming in Israel have been already detailed (1). With respect to the European Union (EU) Council Directive 2008/120/EC of 18 December 2008 “Laying down minimum standards for the protection of pigs” (3) (the EU Directive), the Regulations ameliorate some parameters in swine farming for agricultural

purposes and/or meat supply. These ameliorations relate to stocking density of animals; days of restraint for breeders at insemination and after farrowing; analgesic treatments at tail-docking, castration and corner-teeth clipping; fibers supplementation to gestating sows; air quality; light intensity and veterinary supervision.

The purpose of this communication is to highlight these ameliorations and provide the technical background for the changes with respect to the EU Directive.

Comparison of key parameters of the Regulations with respect to EU Directive

In order to help the reader, the order of the EU Directive articles, as laid down, has been followed:

Article 3a. The unobstructed floor area available for rearing pigs, with the exception of gilts and breeders.

Table 1 illustrates the minimal surfaces requirements for rearing pigs from weaning to end of fattening period, according to body weight (b.w.) and to floor type.

Table 1: Available surfaces for rearing pigs according to body weight (kg)

	EU Directive	IL Regulations	
	all type of floor	full floor	slatted floor
live weight kg	m2	m2	
10	0.15	0.25	0.22
10 to 20	0.2	0.40	0.35
20 to 30	0.3	0.53	0.46
30 to 50	0.4	0.75	0.65
50 to 85	0.55	1.06	0.92
85 to 110	0.65	1.27	1.1
> 110	1		
every 10 kg b.w. increase		add 10% surface	

The Regulations allow pigs a larger available area and, in case of continuous floor, the requirement is of a further 15% surface area (or 15% reduction in stock density). The reason for this is that pigs have the propensity to destine part of the floor as a defecation area (4), by so doing reducing the effectively the available clean and/or dry space for laying down, especially if cleaning is not carried out frequently enough.

Article 3b. The unobstructed floor area available to each gilt after service and to each sow.

Table 2 illustrates the minimal surface requirements for gilts and sows holding, according to group size and according to floor type.

Also for breeders a larger space allocation is considered when breeders are kept on full/continuous floor, in order to destine part of the floor as a defecation area.

Article 3:4. Sows and gilts kept in groups after insemination.

The use of insemination stalls is highly controversial: In the past, in many countries it was considered legal to keep sows and gilts in insemination/pregnancy stalls for almost all the entire duration of the pregnancy, and then bring them to the farrowing unit around one week before the expected farrowing date. In The Netherlands (5, 6) sows and gilts can be kept in insemination stalls only up to 4 days after service, in Switzerland (7) up to 10 days in total. In UK, Sweden, Finland (6), and Norway (8), the use of insemination stalls is forbidden: Sows and gilts should always be housed in groups, except at farrowing. According to EU Directive, breeders should be kept in group starting 28 days after service whereas Israeli Regulations allow isolation of sows and gilts,

Table 2: Available surfaces for gilts and sows keeping according to group size and floor type.

	EU Directive	IL Regulations	
	all type of floor	full floor	slatted floor
gilts	m2	m2	
one gilt	1.64	2.07	1.80
up to 6 gilts	1.80	2.07	1.80
6 to 40	#	1.90	1.65
more than 40	1.48	1.73	1.50
sows	m2	m2	
one sow	2.25	2.88	2.5
up to 6 sows	2.48	2.88	2.5
6 to 40	#	2.59	2.25
more than 40	2.03	2.36	2.05

in insemination stalls, only for one week and, in any case, no longer than 48 hours after last insemination.

Regarding isolation of sows and the use of restraint, the Israeli Regulations also limit the restraint period, after farrowing and during lactation, to two weeks only. Starting on the 14th day after farrowing, lactating sows should be released from restraint and kept loose. The rationale for this lies in the fact that if restraint is considered as a tool to prevent piglets being crushed by the sow, crushing is mainly concentrated in the first 1-3 days after farrowing, and mainly under conditions in which piglets cannot find a resting area warm enough. The increased risk of crushing in a cold environmental situation may depend on the fact that the piglets during their first day are weakened by the cool temperatures in the pen; also piglet which spend almost all their time at the sows teat are more likely to be crushed (9, 10). In case of sow restraint at farrowing, recommendations given in Denmark are for at least a larger space accommodation for the sow: 90×210 cm (11). Sows restraint at farrowing is already forbidden in Sweden (6), Norway (8) and Switzerland (7). Loose-housing (11) after a restraint period limited only to the first days after farrowing might be a feasible alternative in order to improve welfare under intensive production conditions (12). Loose-housing may be achieved in the same farrowing pen, by simply opening a section of the restraint, or moving sow and piglets to a pen without restraint at all. In the latter case, the pen can accommodate more than one sow with their offspring. Under any of these cases there must be a means of protecting the piglets by providing mechanisms such as side rails or similar devices. Group lactation has been already tried

in different countries, with no adverse reactions on piglets' performances (13). In case of group lactation, a general recommendation given to farmers is not to exceed 3-4 sows per pen, as in typical social behavior of undomesticated swine (14), or free-range swine (4) and their offspring. The minimal space allowance for each sow/offspring is 4 square meters, as minimal allowance in case of individual farrowing unit (2).

Figure 1 illustrates different types of loose housing of lactating sows at 14th day after farrowing.

Article 3:6. Sows and gilts kept in groups are fed using a system which ensures that each individual can obtain sufficient food:

Israeli Regulations: Adequate trough space should be provided to ensure that all pigs can receive their feed allocation at the same time. In particular, pregnant sows and gilts, are almost always fed at rationed feed level, where a trough space of 40 cm for each head is required (7). This trough space allowance ensures feeding of all the animals in groups at same time and it minimizes competition. Furthermore, feed shall be served exclusively in troughs which are clean from any remains of spoiled or moldy feed; do not contain any secretions or waste to a reasonable extent considering the circumstances. Feeding directly on the floor is not allowed any longer.



Figure 1: Examples of loose sows housing in Israel.

Article 3:7. Pregnant sows and gilts are given a sufficient quantity of bulky or high-fiber feed.

Israeli Regulations require a 10% content in fibers, while the EU Directive requests remains vague, requiring “a sufficient quantity of bulky or high-fiber food”. Germany specifies the request of at least 200 gram of fibers/head/day (6); The Netherlands 250 g/day (5). Considering an average of 4 to 6% fibers in a daily diet of 3.0 – 3.5 kg feed, 10% represents at least 300 g fibers/day. Farmers have two possibilities of complying with the Regulations: either modifying the feed-formula to include 10% fiber or integrating the difference (around 100 – 150g) with a quasi-fibers-only feed.

Article 6. The person attending to the animals has received instructions and guidance on the relevant provisions of Article 3 (crowding of animals) and Annex I (General Conditions and Specific Provisions for Various Categories of Pigs).

Israeli Regulations require that the person responsible for the farm has enough knowledge in pig farming, care, feeding, behavior and ability to identify signs of distress and diseases; furthermore all the workers should be instructed, by the responsible person or by the owner of the farm, relative to the contents of the Regulations. Workers responsible for tail docking, teeth clipping and castration must undergo an examination and receive a specific authorization by the Veterinary Services to perform these operations (2, 3, 15).

Annex 1, I, 2: Pigs must be kept under light conditions with an intensity of at least 40 lux for a minimum period of eight hours per day.

For lighting, as in Austria, Belgium and Germany, Israeli Regulations require day light access through at least 3% of walls or roofs (transparent or semi-transparent panels) (6) as an alternative to (artificial) lighting of at least 40 lux.

Annex 1, I, 7: Access to fresh water. EU Directive requests access to fresh water starting from two weeks of age.

Similar to Austria, Germany and Sweden (6), Israeli Regulations require that all pigs shall have free access to drinking water, regardless their age. Nipples for piglets, different from those for the sow, must be installed also in farrowing pens. After weaning, the number of nipples should be at least one for every 15 pigs. The definition of “drinking water” is according to the Public Health Ordinance – “Sanitary Quality of Drinking Water” – 5734 – 1974, which means quality drinkable water.

Annex 1, I, 8: Procedures resulting in damage to or the loss of a sensitive part of the body.

Israeli Regulations clearly define these procedures are “mutilations”, and only tail docking, teeth clipping or grinding and (males) castration are allowed. Regulations demand for the use of analgesia and pain reduction during the implementation of these mutilations. Pain control and reduction are subject to two different protocols according to the age of piglets:

- Until 7 days of age: The piglet should be treated with prolonged analgesia, with a pharmaceutical product specifically licensed for this use. Local (16) or International labeling (17) are both acceptable. As of 03/2016, Meloxicam is the only active principle authorized, and compulsory “first choice” for pain relief in piglets during castration procedure (16).
- Castration after 7th day of age is feasible only if the veterinary surgeon of the farm decides to postpone the procedures, due to the health status of the piglets. In such a case, piglet should be previously treated with a local anesthetic (Lidocaine or similar (15) by the veterinary surgeon (16), and with prolonged analgesia, as above indicated for younger piglets. Use of analgesics in castration after the 7th day of age is in line with EC Directive at Annex 1, I, 8 – “piglets older than 7 days”.

Other procedures resulting in live tissues damage or loss, like identification through ear cutting or hot-branding, are prohibited. In deep bedding farms (straw, sawdust, etc.) tail docking and teeth reduction are any way prohibited; only one farm in Israel producing laboratory-destined pigs uses deep bedding (sawdust).

Annex 1, II, C, specific provisions for piglets:

Israeli regulations require a minimal temperature of 25°C in the resting area of the piglets in the farrowing pen for the whole lactating period. The rationale of the request is to reduce the propensity of piglets to seek the sow as a source of heat, and in so doing increasing the risk for crushing by the sow (9).

Annex 1, II, D, specific provisions for weaners:

Israeli regulations require the minimal temperature of 24°C in the resting area of the piglets in the weaning pen for at least one week after weaning (18).

Relative to other requirements for air quality, ventilation conditions, the EU Directive is vague and defers the issue as to when “more detailed requirements have to be established” (EU Directive; *Whereas*, 3). For air quality, as in Sweden (6), Israeli Regulations require that maximum levels of some gases shall not exceed specific levels: for NH₃: 10 ppm; for CO₂: 3000 ppm; for N₂S: 2.5 ppm.

For ventilation, excluding the criteria already indicated for suckling and weaning piglets, Israeli regulations require that if the temperature has exceeded 27°C, the ventilation or sprinklers systems shall be activated. One of the problems of some Israeli farms is that they are not connected to electricity system, so that there is no potential for mechanical ventilation. In this case, propositions are given (16) for minimal size of windows opening (at least on two sides of the building) and air flow direction, assuming:

- a minimal requirement of 5-6 m³/ min of air-flow/100 kg body weight (b.w.) (18, 19 modified) at environmental temperature exceeding 27°C
- a minimal air flow of 38 m³ / min through 1 square meter window at climatic conditions of “puff of wind” of 5 km/hour and up to more than 200 m³ / min through 1 square meter window at climatic conditions of “strong wind” of more than 30 km/hour.

DISCUSSION

Despite the fact that the swine population in Israel may be considered small in respect to other western countries (only 200,000 slaughtered heads per year), nevertheless this animal population also deserves minimal legal standards of living, especially in terms of crowding reduction, freedom of movement for sows, environmental and air quality, pain relief in the course of necessary interventions on live tissues and the avoidance of unnecessary mutilations.

The Israeli regulations, implemented since May 2015, are largely inspired by the EU Directive 120 of 2008, but also include some improvements with respect to the EU Directive. These improvements include larger space availability (or lower crowding); further reduction of days of individual confinement of sows and in conditions of movements restrictions; precise air quality parameters; compulsory use of pain-killers during castration, tail docking and teeth clipping; audit and approval for workers involved in these operations and compulsory veterinary assistance.

Taking into account some of these improvements are singly implemented in individual countries, the authors believe that these ameliorative conditions should be considered as a whole and implemented altogether in advanced intensive pigs farming with negligible or no impact on production, but with enormous impact of pig welfare and public acceptance and praise.

REFERENCES

1. Ben-Dov D., Hadani Y., Ben-Simchon, A., Alborali L. and Pozzi, P.S.: Guidelines for Pig Welfare in Israel. *Isr. J. Vet. Med.* 69: 4-15, 2014.
2. Animal Welfare Law – Animal Protection – Regulation for Swine Keeping for Agricultural Purposes, 2015. File of the Regulations, Israel Ministry of Justice, 7492: 930-940; ISSN 0334-7014, 2015
3. Council Directive 2008/120/EC. Laying down minimum standards for the protection of pigs, 2008.
4. Candotti, P. and Rota Nodari, S.: Comportamento e alterazioni comportamentali del suino. in: “Le Patologie del maiale”, 1st Ed., Le Point Veterinaire Italie, edit. Milano, Italy, 2013.
5. Ministerie van Economische Zaken, Checklist welzijnwarkens. TRCNVWA/2014/9031, 2014, www.nvwa.nl
6. Mul, M., Vermeij, I., Hindle, V. and Spoolder, H.: EU-Welfare legislation on pigs – Wageningen UR Livestock Research – Report 273. Wageningen University, P.O. Box 65, 8200 AB Lelystad, 2010, <http://www.livestockresearch.wur.nl>
7. Confederazione Svizzera – Ufficio Veterinario Federale, Informazioni Tecniche – Protezione degli Animali – Misure Minime per la Protezione dei Suini. 8th ed.; 2013, <http://www.animalidareddito.ch>
8. Compassion in world farming – Welfare sheet – Pigs, 2013, <https://www.ciwf.org.uk/media/5235121/Welfare-sheet-Pigs.pdf>
9. Persdotter, L.: Piglet mortality in commercial piglet production herds. Master's Thesis; Department of Animal Breeding and Genetics, SLU, Uppsala, Sweden, 2010. <http://epsilon.slu.se>
10. Marchant, J., Broom, D. and Corning, S.: The influence of sow behavior on piglet mortality due to crushing in an open farrowing system. *Animal Science* 72: 19-28, 2001.
11. Nielsen, P.D.: Loose housing of sows – current systems. *Acta Vet. Scand.* 50 (Suppl. 1): S8, 2008.
12. Lambertz, C., Petig, M., Elkmann, A. and Gaulty, M.: Confinement of sows for different periods during lactation: effects on behavior and lesions of sows and performance of piglets. *Animal* 9: 1373-1378, 2015.
13. Einarsson, S., Sjunnesson, Y., Hultén, F., Eliasson-Selling, L., Dalin, A.M., Lundeheim, N. and Magnusson, U.: A 25 years experience of group housed sows reproduction in animal welfare friendly systems. *Acta Vet. Scand.* 56: 37, 2014. doi: 10.1186/1751-0147-56-37.
14. Graves, B.: Behavior and ecology of wild and feral swine (*Sus scrofa*). *J. Anim. Sci.* 58: 482-492, 1984.
15. Confederazione Svizzera – Ordinanza sulla Protezione degli Animali – OPA – 2008. (updated 2015) <https://www.admin.ch/opc/it/classified-compilation/20080796/index.html>
16. Israel Ministry of Agriculture – Veterinary Services – Swine Health Unit, Procedure for the application of the Regulations of Raising and Detention of Pigs for Agricultural Purposes – 2015, http://www.vetserv.moag.gov.il/NR/rdonlyres/4365322F-13EC-4D5A-80C3-CF735A5E9178/0/nohal_tzaar_hazirim_2015.pdf
17. EMEA – European Medicines Agency http://www.ema.europa.eu/ema/index.jsp?curl=pages/medicines/veterinary/medicines/000033/vet_med_000142.jsp&mid=WC0b01ac058001fa1c
18. Zulovich, J.: Effect of the environment on health. In “Diseases of swine”, 10th Ed., Zimmerman, J., Karriker, L., Ramirez, A., Schwartz, K. and Stevenson, G.: Editors, Wiley-Blackwell, Ames, (Iowa), USA, 2012.
19. Guizzardi, F., Guizzardi, S., Saccani, A., Zanoni, E., Valtorta, M.G. and Ghinzelli, M.: Il benessere del suino in allevamento, Papi Edit., Bologna, Italy, 2004.