

REVISED CONDITIONS FOR REGULATION OF INSECT AND INSECT PRODUCTS (IMPORTS AND LOCALLY FARMED/PROCESSED)

Table of Contents

A) Import Conditions for Insect and Insect Products

Table 1: Import Conditions for Insect and Insect Products..... 2-3

B) Pre-licensing requirements

Table 2: Additional Pre-Licensing Requirements for Farming of Insects for Human Consumption or Farming for Animal Feed 4-5

Table 3: Additional Pre-Licensing Requirement for Processing of Insects for Human Consumption..... 6

C) Table A: List of Insect Species Approved for Human Consumption 7

Note: Conditions in this document are revised following feedback from SFA’s public consultation on “Regulation of insect and insect products (imports and locally farmed/processed)”, which ran from 5 Oct 2022 to 4 Dec 2022. The import and sale of insects and insect products are not allowed until the proposed conditions and regulatory measures come into effect. SFA will issue a trade circular and notify the industry when import and sale is allowed.

Import Conditions

The following conditions in Table 1 will apply to the import of insects and insect products, depending on their intended purpose (i.e., farming, human consumption, or animal feed).

- For import for human consumption: S/N 1, 2, 5, 6 will apply
- For import for animal feed: S/N 1, 2 will apply
- For import for local farming (for human consumption): S/N 3, 4, 5, 7 will apply
- For import for local farming (for animal feed): S/N 3, 4, 7 will apply

Table 1: Import Conditions for Insect and Insect Products

S/N	Import condition
For all imports of insects and insect products for human consumption, or animal feed, the following conditions apply:	
1	<p>Submission of the following documents (one-time submission) from Competent Authority of the exporting country for SFA's consideration:</p> <p>(i) Documentary proof that products are manufactured in premises regulated by Competent Authority; and</p> <p>(ii) Hazard Analysis Critical Control Point (HACCP)/ Food Safety Management System (FSMS) plan showing that products are manufactured in establishments which have in place production and post-harvest processes to identify the hazard(s) and the control measures.</p>
2	<p>Submission of Health certificate for every consignment to certify that:</p> <p>a) Insects are not harvested from the wild;</p> <p>b) Manure, decomposing organic material and materials originating from diseased animals or fish are <u>not</u> used as feeding substrates.</p> <p>(Decomposing state is identified by putrid odours, mushy/slimy, or with visible mould or bacteria growth. Substrates which have undergone controlled fermentation are permitted); and</p> <p>c) No materials of ruminant origin are used as feeding substrate, except for deboned meat cuts and dairy (e.g. milk and cheese) products.</p> <p>d) The products have been handled and packed in a hygienic manner and are free from contaminants</p>
For all imports of live insects for local farming (for human consumption or animal feed¹), the following conditions apply:	

¹ SFA recognizes that there may be a need to obtain insects from the wild for breeding purposes, to maintain genetic diversity in a farmed population. Imports of live insects for the purpose of supplemental breeding stock (i.e., for introduction of genetic diversity into the farmed population) will not be subjected to these import conditions. However, the applicant still needs to fulfil and obtain approval from the National Parks Board (NParks) on requirements for the import conditions for insects and other invertebrates.

3	<p>Submission of the following documents (one-time submission) from Competent Authority of the exporting country for SFA's consideration:</p> <p>(iii) Documentary proof that insects are farmed in premises regulated by Competent Authority; and</p>
4	<p>Submission of Health certificate for every consignment to certify that:</p> <p>a) Insects are not harvested from the wild;</p> <p>b) Manure, decomposing organic material and materials originating from diseased animals or fish are <u>not</u> used as feeding substrates. (Decomposing state is identified by putrid odours, mushy/slimy, or with visible mould or bacteria growth. Substrates which have undergone controlled fermentation are permitted); and</p> <p>c) No materials of ruminant origin are used as feeding substrate, except for deboned meat cuts and dairy (e.g. milk and cheese) products.</p>
Additional conditions applicable to insects imported for human consumption:	
5	<p>The insect species imported may only be those listed in the List of Insect Species Approved for Human consumption (Refer to Table A).</p> <p><i>[Declaration of insect species imported will be required as part of import permit approval]</i></p>
6	<p>For insects and insect products which are imported for <u>direct</u> human consumption (i.e., ready-to-eat products², eg. Fried insect snacks, protein bars with insect powder):</p> <p>Submission of health certificate to certify that products have been subjected to sufficient heat treatment, or an equivalent bactericidal process, to kill pathogens prior to consumption; and are safe for consumption.</p>
Additional condition applicable to insects imported live:	
7	<p>Have fulfilled and obtained approval from the National Parks Board (NParks) on requirements for the import conditions for insects and other invertebrates.</p>

² Ready-to-eat food means any article of food that is made available for sale for direct human consumption without the need for cooking or any other form of processing to eliminate, or reduce to a microbiological standard specified in the Eleventh Schedule, any pathogenic or other micro-organism of concern in the article of food; and includes cup noodles, fruit juice cordial, squash or syrup, powdered beverages and other concentrated food which are meant to be reconstituted or diluted with fluids before consumption (Regulation 35(2), Food Regulations).

Additional Pre-Licensing Requirements

Table 2: Additional Pre-Licensing Requirements for Farming of Insects for Human Consumption or Farming for Animal Feed

SN	Additional Pre-Licensing Requirements	Human Consumption	Animal Feed
1	Insects' species farmed may only be those listed in the List of Insect Species Approved for Human Consumption (Refer to Table A). Insect species that are not in the approved list will be considered novel food and companies will be required to submit a safety assessment for SFA's review.	✓	
2	Wild harvested insects can only be used as a supplemental breeding stock.	✓	✓
3	Applicant is required to establish and submit a Hazard Analysis Critical Control Point (HACCP)/ Food Safety Management System (FSMS) plan in their production and post-harvest processes to identify the hazard and the control measures. The applicant is required to implement the HACCP/FSMS as submitted throughout the licence term.	✓	✓
4	<u>Substrates</u> Substrate used for feeding of insects shall not be contaminated with any substances which may cause the insects to be unsafe for human consumption.	✓	
5	<u>Substrates</u> Manure, decomposing organic material and materials originating from diseased animals or fish are not to be used as feeding substrates. For materials of ruminant origin, only deboned meat cuts and dairy (e.g.	✓	✓

SN	Additional Pre-Licensing Requirements	Human Consumption	Animal Feed
	<p>milk and cheese) products are allowed.</p> <p>For food waste to be used as insect substrate, the food waste should not be in a decaying or decomposing state (Decomposing state is identified by putrid odours, mushy/slimy, or with visible mould or bacteria growth. Substrates which have undergone controlled fermentation are permitted).</p> <p>Applicants are to ensure that there is a system in place to screen inputs into the waste stream, to ensure that the substrate will not contain materials which are disallowed.</p>		
6	<p><u>Post-harvest</u> Good hygiene practices are to be implemented during post-harvest handling to prevent cross contamination.</p>	✓	✓
7	<p><u>Post-harvest</u> Insects for human consumption have been subjected to sufficient heat treatment, or an equivalent bactericidal process, to kill pathogens prior to consumption; and are safe for consumption</p>	✓	
8	<p>The licensee shall not conduct any sales of <u>live</u> insects to retailers (both brick-and-mortar or online) or members of the public without the prior approval of the Director-General.</p>	✓	

Table 3: Additional Pre-Licensing Requirement for Processing of Insects for Human Consumption

SN	Additional Pre-Licensing Requirements
1	Insect species processed may only be those listed in the List of Insect Species Approved for Human Consumption (Refer to Table A). Insect species that are not in the approved list will be considered novel food and companies will be required to submit a safety assessment for SFA's review.
2	Insects used for processing are not harvested from the wild.
3	For Ready-To-Eat (RTE) insect products: The applicant shall conduct a pilot production for SFA's inspection and verification of food safety practices. The applicant shall submit laboratory analysis test results from accredited laboratories (under SFA's Laboratory Recognition Programme [LRP]) as one of the documents for licence application. The testing parameters include <i>Bacillus cereus</i> , <i>Clostridium perfringens</i> , <i>Escherichia coli</i> O157:H7, <i>Listeria monocytogenes</i> , <i>Salmonella</i> spp., Coagulase-positive <i>Staphylococcus aureus</i> count and <i>E. coli</i> count. The test results are to be in compliance with the Singapore Food Regulations.
4	Applicant is required to submit a Hazard Analysis Critical Control Point (HACCP)/ Food Safety Management System (FSMS) plan in their processing plans to identify the hazard and the control measures. The applicant is required to implement the HACCP/FSMS as submitted throughout the licence term.
5	Insects for human consumption have been subjected to sufficient heat treatment, or an equivalent bactericidal process, to kill pathogens prior to consumption; and are safe for consumption
6	Products are manufactured, packed, transported, and stored in a manner that prevents contamination.

Table A: List of Insect Species Approved for Human Consumption

S/N	Order/ Family	Common name of insect	Life stage	Scientific name of insect
1	Orthoptera	a) House cricket	Adult stage only	<i>Acheta domesticus</i>
		b) Banded cricket	Adult stage only	<i>Grylodes sigillatus</i>
		c) Common/field cricket	Adult stage only	<i>Teleogryllus testaceus/ Teleogryllus mitratus (Gryllus testaceus)</i>
		d) Black/field cricket/ Two-spotted cricket	Adult stage only	<i>Gryllus bimaculatus</i>
		e) African migratory locust	Adult stage only	<i>Locusta migratoria migratorioides</i>
		f) American desert locust	Adult stage only	<i>Schistocerca americana gregaria</i>
		g) Grasshopper	Adult stage only	<i>Oxya japonica Thunberg</i>
2	Coleoptera	a) Superworm beetles / Giant mealworm beetle / King mealworm	Larvae stage only	<i>Zophobas atratus morio</i>
		b) Mealworm	Larvae stage only	<i>Tenebrio molitor</i>
		c) Lesser mealworm	Larvae stage only	<i>Alphitobius diaperinus</i>
3	Lepidoptera	a) Greater wax moth/ Honeycomb moth	Larvae stage only	<i>Galleria mellonella</i>
		b) Lesser wax moth	Larvae stage only	<i>Achroia grisella</i>
		c) Silk moth/ silkworm	Larvae & Pupa	<i>Bombyx mori</i>
4	Scarabaeidae	a) Whitegrub	Larvae stage only	<i>Protaetia brevitarsis</i>
		b) Giant Rhino beetle grub	Larvae stage only	<i>Alomyrina dichotoma</i>
5	Hymenoptera	a) Western honey bee/ European honey bee	Adult stage only	<i>Apis mellifera</i>