



Notification of Department of Agriculture  
Re: Conditions for Import of Apple Fruit from the Federal Republic of Germany  
B.E. 2563 (2020)

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The Department of Agriculture has completed pest risk analysis for commercial importation of fresh apple fruit from the Federal Republic of Germany.

By virtue of the provisions of Section 8 (2) and Section 10 of the Plant Quarantine Act B.E. 2507 (1964) amended by the Plant Quarantine Act (No. 3) B.E. 2551 (2008), the Director-General of Department of Agriculture through the recommendation of the Plant Quarantine Committee, hereby announces phytosanitary import requirements of fresh apple fruit from the Federal Republic of Germany as follows:

1. This notification shall be called “Notification of Department of Agriculture, Re: Conditions for Import of Apple Fruit from the Federal Republic of Germany B.E. 2563 (2020)”.
2. This notification shall enter into force a day after the date of its proclamation in the Government Gazette.
3. **Permitted Plant Species**  
  
Fresh apple (*Malus domestica*) fruit.
4. **Quarantine Pests of Concern**  
  
A list of quarantine pests of concern to the Kingdom of Thailand for apples from the Federal Republic of Germany is given in the **Annex 1**.
5. **Responsible Organizations**
  - 5.1 Kingdom of Thailand: Department of Agriculture (hereinafter referred to as DOA).
  - 5.2 Federal Republic of Germany: Federal Ministry of Food and Agriculture (BMEL); the Julius Kühn-Institute (JKI), Federal Research Centre for Cultivated Plants, Plant Health Institute and the official Plant Health Services of the 16 federal states is designated as an official National Plant Protection Organization of the Federal Republic of Germany (hereinafter referred to as NPPO).

**6. Import Permit**

Import permit issued by DOA is required.

**7. Means of Conveyance**

Apples must be imported from a port in the Federal Republic of Germany to a port in the Kingdom of Thailand by sea cargo.

**8. Production Areas**

Apples must be produced in the Federal Republic of Germany and sourced from areas proposed by the NPPO as production areas for export to the Kingdom of Thailand and approved by the DOA prior to export.

**9. Requirements for Orchard**

9.1 Orchards in approved production areas involved in the export of apples to the Kingdom of Thailand must be commercial orchards and registered by the NPPO or under a NPPO-approved system. Copies of the registration records must be made available to DOA upon request. The NPPO is required to register export orchards prior to commencement of export.

9.2 Growers of registered orchards must implement good agricultural practices (GAPs). This includes maintaining of orchard sanitation and the implementation of integrated pest management or other pest control measures to ensure that quarantine pests of concern to the Kingdom of Thailand are adequately managed.

9.3 Growers must maintain records of management, monitoring and control activities undertaken in registered orchards throughout the growing season. Those records must be made available to the NPPO and DOA upon request.

**10. Requirements for Packinghouse**

10.1 Packinghouses involved in the export of apples to the Kingdom of Thailand must be registered with and monitored by the NPPO. Copies of the registration records must be made available to DOA upon request. The NPPO is required to register packinghouses prior to commencement of export.

10.2 Packinghouses are required to source apples only from registered commercial orchards in approved production areas to facilitate trace back of export fruit. Records of growers supplying apples for export to the Kingdom of Thailand must be maintained by packinghouses and made available to the NPPO and DOA upon request.

10.3 Packinghouses are required to have well-documented standard operating procedures (SOPs), which describes in detail all processes related to grading, handling and packing.

- 10.4 An audit must be conducted by the NPPO prior to registration of packinghouses and then done at least annually. Packinghouses must be responsible for maintaining all documentation.
- 10.5 Inspection of fruit for freedom from quarantine pests must be done within the registered packinghouses.

## 11. Requirements for Quarantine Pests

Apples intended for export to the Kingdom of Thailand must require risk management measures for Mediterranean fruit fly (*Ceratitis capitata*). Apples must be subjected to specified cold disinfestation treatment.

## 12. Management Measures for *Ceratitis capitata*

Apples must be subjected to the following cold disinfestation treatment schedule to control *Ceratitis capitata*.

Innermost fruit pulp temperature	Exposure period (consecutive days)
1.11 °C (34 °F) or below	14 days or more
1.67 °C (35 °F) or below	16 days or more
2.22 °C (36 °F) or below	18 days or more

## 13. Requirements for Cold Disinfestation Treatment

- 13.1 Cold disinfestation treatment can be performed in-transit. In-transit cold disinfestation treatment refers to cold disinfestation treatment conducted in-transit in shipping containers.
- 13.2 In-transit cold disinfestation treatment in shipping containers may be commenced on shore and completed in-transit or completed at destination. In the event of a treatment failure, treatment may be completed on arrival.
- 13.3 In-transit cold disinfestation treatment is assessed on fruit temperature sensors only.
- 13.4 Apples intended for in-transit cold disinfestation treatment must be pre-cooled until innermost fruit pulp temperature at or below the target treatment temperature prior to loading to assure that the fruit is chilled to the proper temperature before the mandatory cold disinfestation treatment is initiated and fruit temperature must be held continuously.
- 13.5 The NPPO must ensure compliance with conditions specified in the **Annex 2**. In addition, certificate of calibration for in-transit cold disinfestation treatment specified in the **Annex 3** must accompany with every consignment.

## 14. Requirements for Packing and Labeling

- 14.1 Packaging materials must be clean and new.
- 14.2 Fruit must be packed in packaging which is free from live insects, soil, sand and contaminating plant materials e.g. leaves, twigs, seeds, plant debris or other potential carriers of quarantine pests.
- 14.3 The carton must have necessary information to facilitate traceability. However, it is required that, at least, the following information in English must appear on each carton.
- Product or produce of Germany
  - Name of exporting company
  - Name of fruit (common name)
  - Packinghouse code (PHC)
  - Production unit code (PUC)
- 14.4 If apples are exported to the Kingdom of Thailand in loose cartons, the following information “EXPORT TO THAILAND” must appear on each carton. However, if they are exported to the Kingdom of Thailand on pallets, it is allowable to have the following information “EXPORT TO THAILAND” appearing on each side.
- 14.5 All consignments destined to the Kingdom of Thailand using wood packaging materials must comply with relevant International Standards for Phytosanitary Measures (ISPMs).

## 15. Export Inspection

Before apples are certified for export to the Kingdom of Thailand, the NPPO must be satisfied that the following activities required by DOA have been undertaken.

- 15.1 Apples have been inspected in accordance with appropriate official procedures and found to be free from any quarantine pests specified in the **Annex 1**. If any quarantine pest specified in the **Annex 1** is found, the consignment must be treated with an appropriated treatment (if available) or withdrawn from export.
- 15.2 Apples have been undergone a cold disinfestation treatment specified in Section 12 to control *Ceratitis capitata*.

## 16. Phytosanitary Certification

- 16.1 A phytosanitary certificate (PC) issued by the NPPO is required. The original copy must accompany every consignment to the Kingdom of Thailand and bear the following additional declaration:

*“This consignment of apple fruit was produced and prepared for export in accordance with the conditions for import of apple fruit from Germany to Thailand.”*

## 16.2 Cold disinfestation treatment

The original copy of certificate of calibration for in-transit cold disinfestation treatment specified in the **Annex 3** must accompany with the phytosanitary certificate.

16.3 The intermodal/sea/shipping container and seal numbers must be recorded on the phytosanitary certificate.

## 17. Import Inspection

17.1 When the consignments arrive at the point of entry in the Kingdom of Thailand, the import inspection must be conducted after confirming the respective documents accompanying the consignments concerned.

17.2 All consignments must be free of live insects, disease symptoms, contaminant seeds, soil, trash and other debris on arrival in the Kingdom of Thailand.

17.3 A representative sample of the consignments will be randomly selected, at the inspector's discretion, and examined to determine if pests are present. If live pests are found, samples will normally be sent for laboratory identification, and the consignments held pending the results.

17.4 For consignments of fruit of less than 1,000 units, the sample size is either 450 units or 100% of consignment. For consignments of fruit of greater than or equal to 1,000 units, then 600 units are to be sampled.

17.5 In the case of quarantine pests of concern to the Kingdom of Thailand as stipulated in the **Annex 1** being found during import inspection, the following measures must be taken.

### 17.5.1 Fruit flies

- (1) If any live stage of fruit flies is found, the infested consignment must be either re-exported or destroyed at the importer's expense. DOA immediately suspends importation and notifies to the NPPO of the interception.
- (2) The NPPO shall immediately investigate the cause of such incidence and propose corrective actions. Suspension of import will be lifted when the cause of non-compliance has been clarified and corrective actions have been implemented to the satisfaction of DOA.

17.5.2 If any live quarantine pest other than fruit flies is found, the consignment must be treated with an appropriated treatment (if available), re-exported or destroyed at the importer's expense.

- 17.6 If any live organism of potential quarantine concern to the Kingdom of Thailand not listed in the **Annex 1** is found, the consignment must be treated with an appropriated treatment (if available), re-exported or destroyed at the importer's expense. DOA reserves the right to impose a temporary suspension of import from the identified pathway until a risk assessment of intercepted organisms is determined.
- 17.7 DOA reserves the right to have fruit re-exported or destroyed at the importer's expense, if one of the following cases is found.
- 17.7.1 Cold disinfestation treatment was unsuccessful.
- 17.7.2 Container doors are not completely closed.
- 17.7.3 Container seal is broken or replaced or does not match the number on the phytosanitary certificate.
- 17.7.4 Temperature sensor extends beyond the fruit or is not located in specified positions or sensor fruit was ruptured.
- 17.7.5 Packaging labeling is missing or incorrect.

## **18. Audit of Export Procedures**

- 18.1 The export of apples from the Federal Republic of Germany to the Kingdom of Thailand shall only begin after the DOA has completed the audit of export certification procedures of the Federal Republic of Germany. The costs of such audits must be borne by the Federal Republic of Germany.
- 18.2 In the event of a suspension of import or any irregularity, DOA may audit export certification procedures in the Federal Republic of Germany prior to a decision being taken on resumption of import. The costs of such audits must be borne by the Federal Republic of Germany.

Issued on 18 March B.E. 2563 (2020)

Ms. Surmsuk Salakpetch

Director-General  
Department of Agriculture

List of Quarantine Pests of Apple fruit from the Federal Republic of Germany  
Attached to Notification of Department of Agriculture  
Re: Conditions for Import of Apple Fruit from the Federal Republic of Germany  
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Scientific name	Common name
Insects	
Order Coleoptera	
Family Attelabidae	
<i>Rhynchites auratus</i>	apricot weevil
<i>Rhynchites bacchus</i>	peach weevil
Family Byturidae	
<i>Byturus tomentosus</i>	raspberry beetle
Order Diptera	
Family Cecidomyiidae	
<i>Dasineura mali</i>	apple leaf-curling midge
Family Tephritidae	
<i>Ceratitis capitata</i>	Mediterranean fruit fly
Order Hemiptera	
Family Aphididae	
<i>Eriosoma lanigerum</i>	woolly aphid
Family Diaspididae	
<i>Aspidiotus nerii</i>	aucuba scale
<i>Diaspidiotus ostreaeformis</i>	pear oyster scale
<i>Diaspidiotus pyri</i>	yellow pear scale
<i>Hemiberlesia rapax</i>	greedy scale
<i>Lepidosaphes ulmi</i>	oystershell scale
<i>Parlatoria oleae</i>	olive scale
Family Pseudococcidae	
<i>Phenacoccus aceris</i>	apple mealybug
<i>Pseudococcus viburni</i>	California mealybug
Order Lepidoptera	
Family Crambidae	
<i>Ostrinia nubilalis</i>	European maize borer
Family Lyonetiidae	
<i>Leucoptera malifoliella</i>	pear leaf blister moth
Family Pyralidae	
<i>Euzophera bigella</i>	quince moth
Family Tortricidae	
<i>Adoxophyes orana</i>	summer fruit tortrix
<i>Archips podana</i>	great brown twist moth
<i>Archips rosana</i>	European leafroller
<i>Argyrotaenia ljugiana</i>	grape tortrix
<i>Cydia pomonella</i>	codling moth
<i>Grapholita funebrana</i>	red plum maggot

Scientific name	Common name
<i>Grapholita molesta</i>	Oriental fruit moth
<i>Hedya nubiferana</i>	bud moth
<i>Pandemis heparana</i>	apple brown tortrix
<i>Spilonota ocellana</i>	eye-spotted bud moth
Family Yponomeutidae	
<i>Argyresthia conjugella</i>	apple fruit moth
Mites	
Family Eriophyidae	
<i>Aculus schlechtendali</i>	apple rust mite
Family Tetranychidae	
<i>Amphitetranychus viennensis</i>	hawthorn spider mite
<i>Panonychus ulmi</i>	European red mite
Plant pathogens	
Bacteria	
<i>Erwinia amylovora</i>	fireblight
<i>Pseudomonas cichorii</i>	bacterial blight of endive
<i>Pseudomonas viridiflava</i>	bacterial leaf blight of tomato
Fungi	
<i>Monilinia fructicola</i>	brown rot
<i>Monilinia fructigena</i>	brown rot
<i>Monilinia laxa</i>	blossom blight
<i>Neofabraea alba</i>	bull's-eye rot
<i>Neofabraea malicorticis</i>	apple anthracnose
<i>Neonectria ditissima</i>	Nectria canker
<i>Phacidiopycnis washingtonensis</i>	speck rot
<i>Phytophthora cambivora</i>	fruit rot
<i>Phytophthora cryptogea</i>	tomato foot rot
<i>Podosphaera clandestina</i>	powdery mildew
<i>Venturia inaequalis</i>	apple scab
<i>Venturia pyrina</i>	black spot of pear



Requirements for In-Transit Cold Disinfestation Treatment  
Attached to the Notification of Department of Agriculture  
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1. Requirements for Containers

- 1.1 Container's types and series must be suitable for in-transit cold disinfestation treatment.
- 1.2 Containers must be self-refrigerated shipping containers and must be equipped with a recording device. The NPPO is responsible for ensuring that containers used by exporters are of a suitable type, and have refrigerator equipment capable of achieving and holding the required temperatures.

2. Requirements for Temperature Recording System

The NPPO must ensure that temperature recording system, the combination of the cold treatment data recorders and fruit pulp temperature sensors, must meet the following criteria:

- 2.1 The system must be suitable for cold disinfestation treatment. The accuracy of the system must be within plus or minus 0.3 °C of the true temperature in the range of minus 3 °C to plus 3 °C.
- 2.2 The system must be capable of automatic operation and able to accommodate a minimum of three fruit temperature sensors.
- 2.3 The system must be capable of continuous recording of date, time, sensor number, and temperature during all calibrations and for the duration of treatment period.
- 2.4 The system must be capable of recording all temperature sensors at least once every hourly, with a resolution of 0.1 °C and storing data until the information can be examined by the DOA officer.
- 2.5 The system must be capable of producing printout which identifies each sensor, time and the temperature, as well as the identification number of the recorder and the container.

3. Requirements for Temperature Sensors

- 3.1 Sensor's type must have an optimal accuracy for the temperature range of this cold treatment.

- 3.2 Sensors must have an outer sheath diameter of 6.4 millimeters or less. The sensing unit must be located within the first 25 millimeters or less of the sensor's tip. Sensors must be accurate to within plus or minus 0.3 °C in the range of minus 3 °C to plus 3 °C.
  - 3.3 Each sensor must be tagged with a number identical to sensor's number accompanying its readings in the printout produced by the temperature recording system.
4. Calibration of Temperature Sensors
- 4.1 Calibration of the temperature sensors must be conducted under the supervision of the NPPO.
  - 4.2 Calibration must be conducted using a mixture of crushed ice and distilled water in a clean insulated container prior to the temperature sensors being placed in fruit.
  - 4.3 Crushed ice must completely fill the container. Enough water should be added to stir the mixture. The percentage of ice is estimated at 80-85 percent while the water fills the air voids (15-20 percent).
  - 4.4 The mixture must be thoroughly stirred to ensure the water is completely cooled and good mixing has occurred. At least 10 minutes of adaptation period, is required to reach a steady state of 0 °C.
  - 4.5 During the calibration, all the temperature sensors and the calibrated thermometer must be immersed in the ice water slurry without touching the sides or bottom of the container. The mixture must be constantly stirred while testing is being carried out. Only after the readings are stabilized at the lowest constant temperature, the calibration readings can be conducted.
  - 4.6 Two consecutive readings must be recorded for each sensor at the lowest temperature obtainable. There shall be at least a 60 second interval between the two readings for any one sensor; however, the interval should not exceed 5 minutes. The variance between the two readings must not exceed 0.1 °C.
  - 4.7 Any sensor which reading shows a deviation of more than plus and minus 0.3 °C from the standard 0 °C must be replaced and rejected for further use for cold treatment.
  - 4.8 A "Certificate of calibration for in-transit cold disinfestation treatment in self-refrigerated container" as shown in the **Annex 3** must be prepared for each container by the NPPO officer. The original copy must be attached to the phytosanitary certificate which accompanies the consignment.

## 5. Placement of Temperature Sensors

- 5.1 Loading of packed fruit into containers and placement of temperature sensors must be conducted under the supervision of the NPPO.
- 5.2 Containers must be packed in an appropriate manner which ensures that there is even airflow under and around all pallets and loose stacked cartons.
- 5.3 Records for in-transit cold disinfestation treatment are required at least three temperature sensors to monitor innermost fruit pulp temperature in a container. These sensors must be distributed throughout the fruit in a representative cross section of the container that enables an adequate monitoring of the temperature.
- 5.4 The temperature sensor used to measure the fruit pulp temperature must be inserted carefully into the center of a test fruit. The test fruit shall be selected from the largest fruit size in the lot. With small fruit, the sensor shall penetrate two or more fruit. The sensor's tip must not be extended beyond the fruit, as well as fruit rupture and opened by sensor insertion, to prevent measuring air temperature instead of fruit pulp temperature. In these cases, the cold treatment is rejected.
- 5.5 Fruit temperature sensors must be placed in a 6 meter (20 foot) container and a 12 meter (40 foot) container in the following locations, as depicted in **Figure 1**.
  - 5.5.1 Two fruit pulp temperature sensors must be placed in boxes diagonally opposite at the side walls approximately 1 meter from the end of the load for a 6 meter container and approximately 1.5 meters from the end of the load for a 12 meter container.
  - 5.5.2 One fruit pulp temperature sensors must be placed in a box in the center of the container.
  - 5.5.3 All three sensors must be placed at mid-height of the stack.

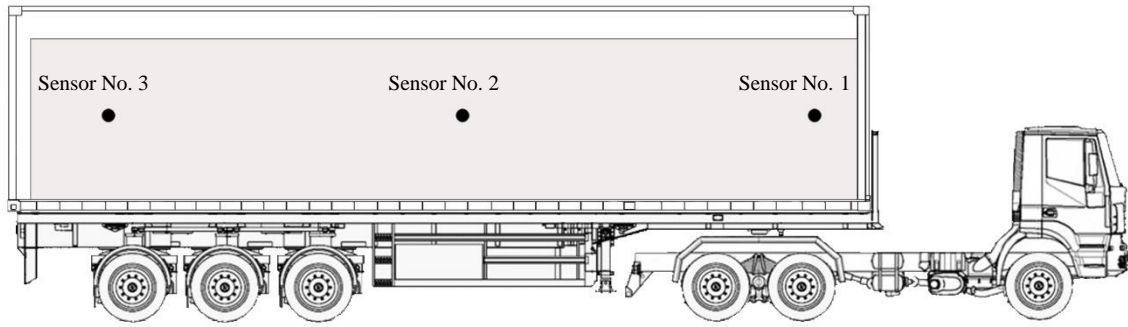
## 6. Sealing of Containers

- 6.1 After completion of loading, the container door must be closed properly and sealed with a numbered metal seal under the NPPO supervision. The seal must be intact until arrival at the port of entry in the Kingdom of Thailand, where the DOA inspectors only are authorized to open it. Containers with a broken seal must be rejected.
- 6.2 The seal number must be recorded on the phytosanitary certificate.

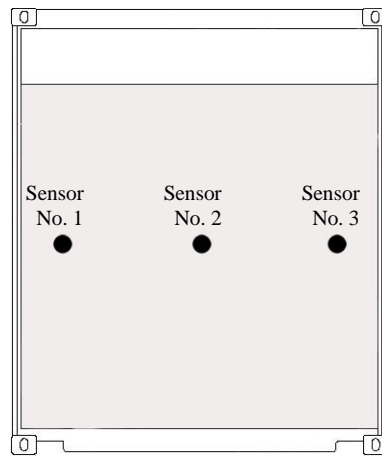
## 7. Confirmation of Treatment

- 7.1 The in-transit arrangement is for the cold disinfestation treatment to be completed during the voyage between exporting country and the port of discharge in the Kingdom of Thailand. The Shipping Company shall download the computer records of the cold disinfestation treatment and forward them to officer at port of entry.
- 7.2 The DOA Bangkok Office must verify whether the treatment records meet disinfestation requirements and advise the DOA officer at the port of arrival that, subject to calibration of sensors, the treatment is complete.
- 7.3 On arrival DOA must check the calibration of the fruit temperature sensors using the method referred to in Section 4 and verify that the treatment records meet disinfestation requirements.
- 7.4 Re-calibration of the fruit sensors at the completion of the treatment which shows a higher than initial calibration setting, the recordings from the probe(s) will be adjusted accordingly.
- 7.5 If this adjustment reveals that the nominated treatment schedule was not met, the treatment will be deemed to have failed. The consignment must be re-exported or destroy at the importer's expenses.

**SIDE VIEW**

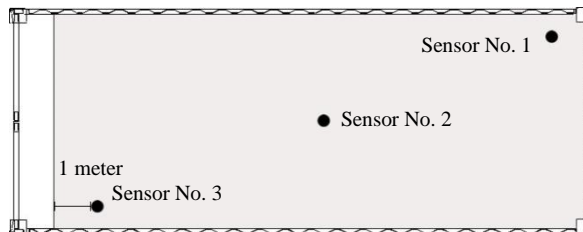


**DOOR VIEW**



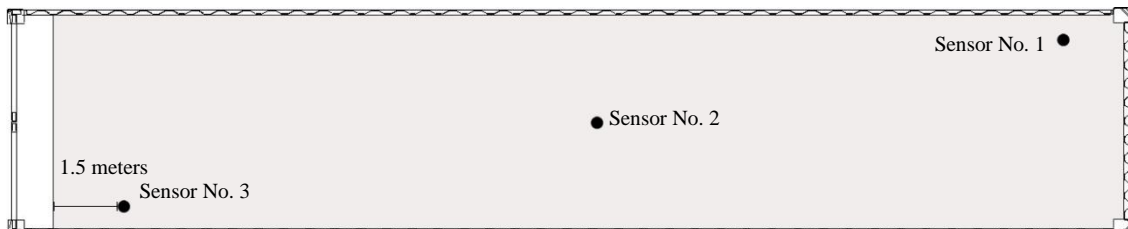
**TOP VIEW**

6 meter (20 foot) container



**TOP VIEW**

12 meter (40 foot) container



**Figure 1.** Placement of fruit temperature sensors in a container for in-transit cold disinfestation treatment.

Certificate of Calibration for In-Transit Cold Disinfestation Treatment  
in Self-Refrigerated Container for Thailand  
Attached to the Notification of Department of Agriculture  
Re: Conditions for Import of Apple Fruit from the Federal Republic of Germany  
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Exporter name: .....

Phytosanitary certificate number: .....

Container number: .....

Container seal number: .....

Recorder serial number: .....

Container clock set to GMT: .....

Date calibrated (dd/mm/yy): .....

1. Sensor calibration (at 0 °C):

Sensor Identification	1 <sup>st</sup> Reading	2 <sup>nd</sup> Reading	Correction factor
1 .....	.....	.....	.....
2 .....	.....	.....	.....
3 .....	.....	.....	.....

2. Sensor placement:

Sensor placement	Pulp temperature (°C)
1 .....	.....
2 .....	.....
3 .....	.....

3. Container sealed:

Local time: ..... Date (dd/mm/yy): .....

.....

Inspector name                      Inspector signature                      Stamp

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- The Government Gazette: Volume 137, Special Part 93 D, Page 35-40, Date 22 April 2020
  - UNOFFICIAL TRANSLATION
  - This is an English translation. In case of any difference in meaning between the Thai text and the English translation, the Thai text shall be applied.