



*executive committee of  
the directing council*

PAN AMERICAN  
HEALTH  
ORGANIZATION

*working part of  
the regional committee*

WORLD  
HEALTH  
ORGANIZATION



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Agenda Item 7

CE101/28 (Eng.)  
29 June 1988  
ORIGINAL: ENGLISH

AEDES ALBOPICTUS (Item proposed by the United States of America)

A PROPOSAL FOR ACTION BY THE  
PAN AMERICAN HEALTH ORGANIZATION

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The recent introduction of Aedes albopictus into the U.S. and Brazil illustrates increasing vulnerability of countries or regions to spread of vector species via modern transportation from other countries or regions. International trade in used tires appears to have been the most likely route of entry into the U.S. and will be also a principal factor in spread to other countries in the Americas. Other high risk routes may exist as well and without effective preventive measures we may expect to see international spread of other important vectors.

The Aedes albopictus plan of action approved in 1987 focuses on national efforts. International collaboration is also needed and should be addressed by the Executive Committee. Specific mechanisms should be developed that will stimulate and provide for effective collaboration between member countries, with special emphasis on the prevention of introduction in used tire shipments. The national plan developed in the U.S. for interdicting further importations could be used as a blueprint for other countries.

I. BACKGROUND

A. Modes of Spread of Aedes albopictus

The discovery of the Ae. albopictus infestation in Houston, TX in 1985 prompted CDC to investigate possible routes of entry of this potentially dangerous vector mosquito. On the basis of previous interceptions of Aedes albopictus in shipments of used tires originating in Asia (Pratt et al., 1946; Eads et al., 1972), this route was immediately suspect.

Between May 18 and December 4, 1986, 79 seagoing containers and their content of 22,051 used tire casings were inspected for the presence of mosquitoes. Of the total inspected, 5,507 (25%) contained water. No adult mosquitoes or eggs were found, but 15 tires contained mosquito larvae identified as Aedes albopictus, Aedes togoi, Tripteroides bambusa, Uranotaenia bimaculata, and Culex pipiens s.l. (Craven et al., 1988). Aedes albopictus larvae were the most frequently collected, occurring at a rate of 20 per 10,000 tires containing water. The overall infestation rate was 6.8 per 10,000 tires inspected. At these rates, 1000 to 2000 infested tires per year could be expected to arrive at U.S. ports from Asian countries. Without efforts at interdiction it would not be surprising to have introduction and establishment of more new species and strains of existing species with the potential introduction of viruses, insecticide resistant strains, and the least, a more diverse gene pool with greater adaptability.

In 1987, Ae. albopictus larvae were found in a cargo of used tires arriving in Barbados from Japan (Bruce Knudsen, personal communication), demonstrating that countries other than the U.S. also are vulnerable to importation of exotic vectors from other parts of the world. The finding of Ae. albopictus and other species in used tires from Asia along with the documentation of a large international trade in used tires (Reiter and Sprenger, 1987) are cause for concern over the risk of other transplantations of vector species.

Of importance is that this demonstrated means of spread of exotic mosquitoes has been identified and is preventable. The implications go far beyond Aedes albopictus and effective prevention measures against that species will also be effective against other important vectors.

B. Rationale for Interdiction of Future Introductions of Exotic Mosquito Species

There are important reasons for concern over possible future introductions of strains of vector species, such as Aedes albopictus, that already exist within a country or region and these are set forth below:

1. Possible introduction of arboviruses. It has been demonstrated that a number of important arboviruses including dengue, YF, and LaCrosse, can be vertically transmitted by Aedes albopictus. This makes possible the introduction of virus infected eggs in cargo such as used tires, which may result in the emergence of infected adult mosquitoes at the shipment destination.
2. Insecticide resistance. Aedes albopictus from many Asian countries are known to be resistant to one or more insecticides commonly used in vector control. Should resistant strains be introduced, they would undoubtedly quickly replace existing susceptible strains with the continued use of the insecticide to which they are resistant. This would obviously make control of the species very difficult, and create an especially dangerous situation during epidemics.
3. Genetic diversity. Aedes albopictus exists in a very large area of the world with greatly varying habitats and conditions represented. Introductions of strains from those diverse areas increases the genetic diversity and potential adaptability of existing populations and carries the risk that the population may become better able to adapt and spread into new areas. For example, the strain of Aedes albopictus that presently occurs in the U.S. apparently is unable to spread from its temperate region of distribution southward into the tropics. Introduction of a strain adapted to the tropics would likely result in a rapid spread of the Aedes albopictus population into Mexico and beyond.

## II. THE PROPOSED ACTION

The International spread of Ae. albopictus and other vector species presents an unacceptable risk to public health. An important mode of spread of mosquitoes among countries has been documented in international shipments of used tires. Practical methods for rendering cargoes of used tires free of all stages of mosquitoes have been demonstrated (Craven et al.). On January 1, 1988, the U.S. Public Health Service implemented a regulation requiring that all used tires from Asian countries arrive at U.S. Ports dry and with a certificate attesting to their having been treated in a manner ensuring they are insect free. It is therefore proposed that PAHO:

- A. Provide for the development of standards for International transport of used tires, certain new tires, and other high-risk cargoes in ways that will eliminate all stages of vector insects.
- B. Review existing standards and, as necessary, provide for the development of new standards for surveillance of vector mosquito species in international carriers, and for design and implementation of sanitation procedures to render international ports and border crossing areas free of breeding habitat and harborage for vector species.
- C. Encourage and support the participation of member nations in implementation of collaborative efforts to prevent international export or import of Ae. albopictus and other vector species. Included in such collaboration should be surveillance for vector species in international port areas and border crossing areas, timely sharing of surveillance data with member nations, and collaboration of control and prevention efforts. An expert committee should be formed to review the problem of international transport and spread of vector species and to develop workable preventive measures.

REFERENCES

- Craven, R.B., D.A. Eliason, D.B. Francy, I.P. Reiter, E.G. Campos, W.L. Jakob, G.C. Smith, C.J. Bozzi, C.G. Moore, G.O. Maupin, and T.P. Monath. 1988. Importation of Aedes albopictus (Skuse) and other exotic mosquito species into the United States in used tires from Asia. J. Am. Mosq. Control. Assoc. (in press).
- Eads, R.B. 1972. Recovery of Aedes albopictus from used tires shipped to the United States ports. Mosq. News 32:113-114.
- Pratt, J.J., R.H. Heterick, J.B. Harrison, and L. Haber. 1946. Tires as a factor in the transportation of mosquitoes by ships. Mil. Sur. 99:785-788.

APPENDICES

Exhibits relating to the "Certification of mosquito-free cargo (used tires) under the authority of Section 361 of the Public Service Act and 42 CFR 71.32(c)".

A. Centers for Disease Control, Public Health Service, HHS memorandum regarding "Notice of Requirement of Certification of Used Tires Prior to Entry into the United States.

B. CDC Technical Specifications.

C. Certificate to be completed on all imported used tire casings from Asia.

D. Federal Register publication on "Requirement of Certification of Used Tire Casings From Asia Prior to Entry Into the United States.

E. Copy of Supplemental Label for Methyl Bromide (Brom-0- Gas).

BILLING CODE: 4160-18

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Centers For Disease Control

REQUIREMENT OF CERTIFICATION OF USED TIRE CASINGS  
FROM ASIA PRIOR TO ENTRY INTO THE UNITED STATES

AGENCY: Centers for Disease Control (CDC), Public Health Service,  
HHS.

ACTION: Notice of Requirement of Certification of Used Tire Casings  
From Asia Prior to Entry into the United States.

SUMMARY: It has been demonstrated that the Asian tiger mosquito is being  
imported into the United States in used tire casing. Consequently, the Public  
Health Service is taking action to prevent the further importation.

BACKGROUND: In August 1985, the Asian tiger mosquito (Aedes albopictus) was  
found to have infested one county in Texas. This mosquito can transmit a  
number of viral diseases to humans, and its presence is considered to  
constitute a significant public health threat. In 1986, Aedes albopictus was  
found to have spread to other locations in the United States and by October 1,  
1987, 15 States had been found to be infested. Field evaluations in the  
spring and early summer of 1987 have demonstrated that this species —  
successfully survives temperate winters as far north as Indiana.

Surveys conducted by the Centers for Disease Control (CDC) have established that Aedes albopictus and other mosquito species are being imported into the United States from Asia in used tire casings.

**IMPLEMENTATION PROCEDURES:** To prevent the further importation of this mosquito and the possible introduction, transmission, or spread of communicable diseases (in these mosquitoes), CDC is taking the following action: Under the authority of Section 361 of the Public Health Service Act and 42 CFR 71.32(c), CDC will require that all used tire casing originating from Japan, Korea, Taiwan, Hong Kong, Thailand, and elsewhere in Asia be certified as being dry, clean, and disinfected.

Disinfection and certification should be accomplished by the exporter using one of the following methods:

- A. Tire casing must be clean and free from water and fumigated, according to label instructions, with at least 2 pounds of methyl bromide fumigant per 1,000 feet<sup>3</sup> for 24 hours.
- B. Tire casing must be clean and free from water and subjected to dry heat at a temperature of 120°F (49°C) for ≥30 minutes.
- C. Tire casing must be clean and free from water and subjected to steam or a pressurized spray of hot water (190°F; 88°C) containing detergent.

After tires have been disinfected they must be kept dry.

The exporter must sign the certificate specifying the method of disinfection used and the date the tires were treated. The importer or his/her agent will sign the certificate at the time of clearance by the U.S. Customs Service and the importer or his/her agent will mail the original copy of the certificate to the Centers for Disease Control, Division of Quarantine, Atlanta, Georgia 30333.

The Customs Service will ensure that all shipments of used tire casings from Asia are accompanied by a valid CDC Disinsection Certificate before releasing the cargo. Shipments of tires that do not have proper documentation will be kept separated from other cargo pending appropriate disposition. All costs incurred for final disposition (including disinsection at a U.S. port of entry) will be borne by the importer.

CDC will make site visits to the major exporting countries to verify disinsection capabilities, will perform periodic inspections of shipments of used tire casings to monitor compliance, and will receive copies of the disinsection certificates from the U.S. Customs Service.

EFFECTIVE DATE: January 1, 1988

FOR FURTHER INFORMATION, COPIES OF TECHNICAL SPECIFICATIONS, OR CERTIFICATION FORMS PLEASE CONTACT:

Mr. Tony D. Perez (404-329-2574)

Centers for Disease Control

Division of Quarantine

Atlanta, Georgia 30333

Dated: NOV 16 1987

*Glenda S. Cowart*

\_\_\_\_\_  
Glenda S. Cowart  
Director  
Office of Program Support  
Centers for Disease Control

CERTIFIED TO BE A TRUE COPY OF THE ORIGINAL

*Mary Ellen Bloodworth* *11-16-87*  
\_\_\_\_\_  
Certifying Officer Date

CDC TECHNICAL SPECIFICATIONS

October 1987

Alternative Methods for Treatment of Used Tire Casings

Any one of the following methods may be employed for the treatment of tire casings, and the importer may select the method used.

1. Methyl Bromide Fumigation

- A. Tires must be dry.
- B. Fumigant applied at 2 lbs. per 1,000 ft.<sup>3</sup> for 24 hrs.
- C. Container opened following fumigation to allow desorption of fumigant. This requires 2-4 days, depending upon ambient temperature.
- D. Demonstration that methyl bromide concentration in container closed for ≥12 hrs. is less than 5 ppm before container is released.

2. Dry Heat Treatment

- A. Tires must be dry.
- B. To kill Aedes albopictus ova, the entire contents of the container must reach a temperature of 120°F (49°C) for ≥30 min.
- C. Various methods may be used to raise the temperature to this level. Thermocouples or other devices placed in several locations within the container (including the lowest point farthest from the heat source) should be used to verify that minimum effective heat treatment has been achieved.
- D. If heating is achieved by introduction of hot air into the rear door of the container, it is more efficient to use an alternative method for loading tires. In order to achieve adequate circulation of heated air, a horizontal-stacking method should be used (Fig. 1). Studies by CDC have verified that the same number of tires (or more tires) can be loaded into a container using the horizontal method.

3. Steam-Detergent Cleaning

- A. Tires must be dry
- B. Each tire must be subjected to steam or a pressurized spray of hot water (190°F; 88°C) containing detergent. Care must be taken to treat the entire internal surface of each tire.
- C. Water remaining after treatment must be removed.

Following the disinsection process tires casings must be kept dry.

The exporter must complete the "Certification of Mosquito-Free Cargo (Used Tires)," check and sign the method of disinsection used and include **both** copies of the certificate with the bill of lading and other shipping **documents** accompanying the cargo.

Department of Health and Human Services  
U.S. Public Health Service, Centers for Disease Control  
Center for Prevention Services, Division of Quarantine  
Atlanta, Georgia 30333

CERTIFICATION OF MOSQUITO-FREE CARGO (USED TIRES)

Under the authority of Section 361 of the Public Health Service Act and 42 CFR 71.32(c), and based upon current epidemiologic information, the Director, Centers for Disease Control (CDC), has determined that cargos containing used tires that originate in Japan, Korea, Taiwan, Hong Kong, Thailand, or elsewhere in Asia may be infested with *Aedes albopictus* and other species of mosquitoes that may be or may become infected with certain communicable diseases (Japanese, California, or St. Louis encephalitis; getah; dengue; etc.). In order to prevent the introduction, transmission, or spread of such diseases, and in accordance with 42 CFR 71.32(c), it is hereby required that all such cargos containing used tires that originate from such countries ~~must~~ be clean, dry, and free from adult mosquitoes, mosquito larvae, or viable mosquito ova.

In accordance with 42 CFR 71.42 used tires will not be permitted entry into the United States without proper certification of disinsection. Cargos of tires without such certification will be kept sealed and separated from other cargo pending appropriate disposition.

SHIPPER: \_\_\_\_\_ ADDRESS: \_\_\_\_\_

TELEX: \_\_\_\_\_

CONSIGNEE: \_\_\_\_\_ ADDRESS: \_\_\_\_\_

TELEX: \_\_\_\_\_

NAME OF CARRIER/VESSEL: \_\_\_\_\_ PORT OF LOADING: \_\_\_\_\_ DATE OF LOADING: \_\_\_\_\_

DATE OF ARRIVAL: \_\_\_\_\_ PORT OF DISCHARGE: \_\_\_\_\_ FINAL DESTINATION: \_\_\_\_\_

BILL OF LADING/AIRWAY BILL NO.: \_\_\_\_\_ CUSTOMS ENTRY NO: \_\_\_\_\_

CONTAINER NO.(S): \_\_\_\_\_ SEAL NO.(S): \_\_\_\_\_

DESCRIPTION OF CARGO: \_\_\_\_\_ NO. OF PIECES: \_\_\_\_\_

CHECK AND SIGN ALL THAT APPLY:

SIGNATURE

1.  All tire casings in this container are free from water and were fumigated according to label instructions with at least 2 lbs. of methyl bromide fumigant per 1000 cu. ft. for 24 hrs. on \_\_\_\_\_ (date). \_\_\_\_\_  
and Post-fumigation methyl bromide level in container closed for more than 12 hrs. was certified to be less than 5 ppm on \_\_\_\_\_ (date) before being transported. \_\_\_\_\_
2.  All the tires in this container are free from water and were subjected to heat treatment according to CDC Technical Specifications (October 1987) on \_\_\_\_\_ (date). \_\_\_\_\_
3.  All tires in this container are free from water and were steam-cleaned with detergent in accordance with CDC Technical Specifications (October 1987) on \_\_\_\_\_ (date). \_\_\_\_\_

FRAUD AND FALSE STATEMENTS

Whoever, violates or knowingly makes any false statement pertaining to these provisions will be subject to prosecution in accordance with federal laws, including, but not limited to 18 U.S.C. 1001 and 42 U.S.C. 271.

Name(s), title, and address of certifying official(s):

\_\_\_\_\_  
IMPORTER/AGENT

\_\_\_\_\_  
TITLE

\_\_\_\_\_  
ADDRESS

\_\_\_\_\_  
IMPORTER/AGENT

\_\_\_\_\_  
TITLE

\_\_\_\_\_  
ADDRESS

Original - CDC (above); Copy - Importer/Agent

CDC 7538 NOTE: Importer/Agent must mail original to Division of Quarantine following clearance by U.S. Customs.  
10-87



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EPA REGISTRATION NUMBERS 5785-4, 5785-7, 5785-8, 5785-42, 5785-55

The following use has been added to TABLE 1 for railroad car, truck, van or trailer fumigation.

TREATMENT SITE	RATE (LBS./A)	EXPOSURE TIME (Hours)
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Used Tires	2a	24
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**WARNING:** Tires may off-gas for 2-3 days before the gas levels fall to 5 ppm. The vehicle must be aerated to below 5 ppm before movement is allowed. The vehicle may then be resealed for shipment. Tires must be free of water during fumigation.

**READ THE ENTIRE LABEL AND GLK 160 C-BOOKLET CAREFULLY PRIOR TO USE. USE BROM-O-GAS® ONLY ACCORDING TO LABEL INSTRUCTIONS**

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### Centers for Disease Control

#### Requirement of Certification of Used Tire Casings From Asia Prior to Entry Into the United States

**AGENCY:** Centers for Disease Control (CDC), Public Health Service, HHS.

**ACTION:** Notice of requirement of certification of used tire casings from Asia prior to entry into the United States.

**SUMMARY:** It has been demonstrated that the Asian tiger mosquito is being imported into the United States in used tire casing. Consequently, the Public Health Service is taking action to prevent the further importation.

*Background:* In August 1985, the Asian tiger mosquito (*Aedes albopictus*) was found to have infested one county in Texas. This mosquito can transmit a number of viral diseases to humans, and its presence is considered to constitute a significant public health threat. In 1986, *Aedes albopictus* was found to have spread to other locations in the United States and by October 1, 1987, 15 States had been found to be infested. Field evaluations in the spring and early summer of 1987 have demonstrated that this species successfully survives temperate winters as far north as Indiana.

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*Effective Date:* January 1, 1988.

*For Further Information, Copies of Technical Specifications, or Certification Forms Please Contact:* Mr. Tony D. Perez (404-329-2574), Centers for Disease Control, Division of Quarantine, Atlanta, Georgia 30333.

Dated: November 16, 1987.

Glenda S. Cowart,  
*Director, Office of Program Support, Centers for Disease Control.*

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