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Progress towards a program for the eradication of *Amblyomma variegatum* from the Caribbean

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Amblyomma variegatum (Fabricius), la tique tropicale bigarrée, est maintenant largement répartie dans les Caraïbes. Dix-huit îles sont actuellement infestées ou l'étaient récemment. Afin d'arrêter la propagation de cette tique vers d'autres îles non infestées et vers le continent d'Amérique du Sud, Centrale et du Nord, un programme régional d'éradication a été proposé et approuvé par les gouvernements de toutes les îles infestées, y compris les îles françaises et les pays membres ou membres associés de CARICOM. Au nom de ses pays membres et membres associés, CARICOM a demandé à l'Organisation des Nations unies pour l'alimentation et l'agriculture (FAO) : de développer des propositions d'éradication ; d'assister les membres de CARICOM à maintenir les programmes existants de lutte contre *Amblyomma* ; de conseiller et assister à rédiger la législation nécessaire à la réalisation d'un programme d'éradication ; d'aider à identifier les fonds pour exécuter le programme d'éradication et, si les fonds sont obtenus, de coordonner la campagne d'éradication contre la tique sur toutes les îles infestées. La répartition actuelle de la tique et la situation concernant le programme d'éradication proposé sont examinées.

Mots clés : Tique - *Amblyomma variegatum* - Lutte antiacarien - Projet de recherche - CARICOM - FAO - Caraïbes.

The tropical bont tick, *Amblyomma variegatum*, is a serious parasite of domestic livestock and wildlife in the Caribbean. This tick transmits heartwater, caused by *Cowdria ruminantium*, and is associated with acute dermatophilosis, a skin disease of livestock caused by the bacterium, *Dermatophilus congolensis*. Wherever the tick and its associated diseases are found, livestock producers experience severe economic losses. Mortality due to acute dermatophilosis is especially severe in susceptible livestock imported into the islands in order to increase production of needed sources of animal protein and products for human consumption. Additional economic

losses occur because producers must treat their animals with acaricides to control ticks and with antibiotics to try to reduce mortality due to the diseases, especially dermatophilosis.

Heartwater was identified in clinical cases in Guadeloupe in 1980 and since 1980 it has been confirmed as endemic in three islands, Marie Galante, Guadeloupe and Antigua (5,10). Because heartwater was found in the Western Hemisphere and because its vector, *Amblyomma variegatum* was found in Puerto Rico and St. Croix, considerable interest in the distribution of the disease and tick and in the eradication of these from the hemisphere was expressed by a number of individuals and institutions during the early 1980's. A flood of research activities were funded during this period (5,10). It was predicted that at least one new island would become infested with the tick per year (1) and this prediction has essentially held true since about 1988.

In the last ten years, the tick has been found infesting livestock on 18 islands in the Caribbean and is continuing to spread to new locations. Evidence recently found seems to indicate that migratory birds, especially the cattle egret, may play an important role in the spread of the tick in the Caribbean. Cattle egrets appeared in the Caribbean in the late 1950's and became well established as breeding colonies on a number of islands during the 1960's and 70's. The tick began to spread to a number of islands during the 1970's which circumstantially (9) suggests that cattle egrets may play an important role in the spread of the tick in the Caribbean. Recent data indicate that not only do cattle egrets migrate frequently, but may do so for long distances - one bird captured live and marked in Guadeloupe was sighted in Layton, Long Key Island, Florida (USA), some 1152 miles (1920 km) to the north while another bird marked in Guadeloupe was sighted about 240 miles (400 km) to the south in Grenada (6).

To stop the spread of *A. variegatum* and its associated diseases, it has been proposed that a regional eradication program be initiated. The technology needed to successfully eradicate the tick from a given island is available (3). Furthermore, successful eradication programs have been carried out on St. Croix (8) and Puerto Rico and Vieques (7) and Culebra (U.S. Department of Agriculture (USDA), APHIS-VS, personal communication 1990). This technology involves the efficient delivery of an effective acaricide (4) to all domestic hosts every 14 days for a period of two years. The primary goal of the eradication technique is to prevent adult ticks from mating on the host and thus, prevent the production of offspring (3,7).

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DEVELOPMENT OF A PLAN OF ACTION

Because of the importance of the tick and its associated diseases, heartwater and dermatophilosis, and because of the seriousness of the threat to the U.S. and other mainland countries in North, Central and South America, recommendations in regard to a regional eradication program against the tick were being discussed. Furthermore and in direct response to recommendations made by Chief Veterinary Officers of the Caribbean Community Secretariat (CARICOM), member and associate member countries, Ministers of Agriculture of CARICOM countries, National Cattlemen's Association (USA) and the U.S. Animal Health Association, as well as the Inter-American Institute for Cooperation on Agriculture (IICA) sponsored a task force which met and outlined a feasibility study proposal for the management of the tick and its associated diseases. The task force produced an outline of the feasibility proposal, identified members of a study group needed to produce the proposal and developed budgetary requirements to accomplish the task. Funding for the study group was provided by U.S. Agency for International Development (USAID), U.S. Department of Agriculture (USDA), CIRAD-EMVT, IICA, and Food and Agriculture Organization (FAO) of the United Nations.

The study group met on several occasions between May and October 1986 before discussing its findings in November 1986 with a larger group of interested parties representing countries, national and international organizations including CARICOM, and invited consultants. The feasibility proposal presented for discussion the following :

- an up-to-date picture of the known distribution (1986) of the tick and of heartwater and dermatophilosis in the Caribbean ;
- a review of the existing veterinary/animal health infrastructures, laws and regulations affecting animal health ;
- an economic evaluation of the tick and its associated diseases, the consequences of its possible spread and the benefits derived from its eradication ;
- research activities necessary to provide information required for the management (eradication) of the problem ;
- an eradication strategy, including economic estimates associated with managing the problem ;
- an organizational framework that could be used to coordinate and implement the eradication campaign.

This report was presented in March 1987 to a "Technical workshop on the tropical bont tick *A. variegatum*" which was organized by CARICOM and attended by representatives of Caribbean countries/islands and international organizations.

PROGRESS TOWARDS THE ERADICATION PROGRAM

Four major resolutions developed from the workshop in 1987 with concurrent actions are presented below :

- The establishment of an *Amblyomma* Program Council. The council was established as the *Amblyomma* Steering Committee (ASC) at a special meeting of the Standing Committee of Ministers responsible for Agriculture (SCMA) of the Caribbean Community (CARICOM) held in FAO Headquarters in Rome, Italy, on 17 November 1987.

- The establishment of a pilot project for the control/eradication of the tropical bont tick on Antigua. The USDA and USAID were responsible for developed and implementation of a proposal to eradicate the tick from Antigua which included operational and research components.

The operational component was not completed because of a technical question which arose from an environmental assessment study where Bayticol® pour-on was identified as not registered by the U.S. Environmental Protection Agency and therefore could not be used in an eradication program sponsored by USAID. As a result of the environmental assessment study, all funds not used for the operational component were deobligated by USAID and returned to the U.S. treasury.

The research component was completed and included research on : a comparative study of commercially available pour-on acaricides which showed that the Bayticol® pour-on acaricide was the most effective in controlling populations of the tick and would be an excellent acaricide for use in an eradication program (4) ; the potential role of the cattle egret in the dissemination of the tick to other islands in the Caribbean (6) ; an economic assessment of an eradication program.

The convening of a donors' meeting to secure adequate resources for the successful eradication of the tick from the Caribbean.

The donors' meeting was held in Rome at the FAO Headquarters on 10 December 1992. Although results from the meeting are encouraging, no donor officially committed funding to support the regional eradication program. Additional effort will be needed to follow up with the interested donors identified prior to and during the donors' meeting.

That Caribbean countries already undertaking emergency tick control activities approach appropriate agencies for immediate emergency support.

FAO, through the Technical Cooperation Programme (TCP), has been approached by CARICOM and a number of individual Caribbean countries to assist in the development of control programs, preparation of documentation and organization of a donors' meeting for the

regional eradication program, and in the development of surveillance and prevention programs.

Results from the TCP program have been the establishment of the infrastructure for an effective control program against the tropical bont tick on St. Lucia which is still operational today. The TCP program has also organized and prepared the document entitled "Programme for the eradication of *Amblyomma variegatum* from the Caribbean" which was the document used to approach potential donors (see above). The establishment of surveillance and prevention programs, advice and assistance with drafting of legislation required to support a tick eradication program, and assistance with continuing control efforts of a number of member and associate member countries of CARICOM has been provided by FAO through the TCP programs of 1991 and 1992.

Additionally, related projects dealing with the eradication/control of *A. variegatum* have been funded by the British Development Division (BDD) of the Eastern Caribbean. The BDD has funded a small three year project, presently ongoing on Montserrat, that is designed to control the tick and prevent further disease outbreaks and spread. The BDD program on Montserrat has been assisted by the regional FAO TCP programs. Previously, the BDD had funded similar *A. variegatum* and dermatophilosis control programs on St. Kitts and Nevis.

CONCLUSIONS

Efforts by FAO and other organization/governments and interested parties over the last six years have resulted in :

1. the establishment of an infrastructure and cooperative relationships among all the principals involved in the regional eradication program ;
2. the completion of a program proposal for a Caribbean-wide eradication program including a co-operational element relating to the implementation of the eradication efforts on the French islands ;
3. assistance with review and drafting of legislation required to support a tick eradication campaign on each of the CARICOM islands presently infested with the *A. variegatum* tick ;

4. Identification of a number of potential donors who have expressed support for the regional eradication program but who have not officially committed themselves to the financial aspects of the program.

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GARRIS (G.I.), BARRÉ (N.), CAMUS (E.), WILSON (D.D.). Progress towards a program for the eradication of *Amblyomma variegatum* from the Caribbean. *Revue Élev. Méd. vét. Pays trop.*, 1993, **46** (1-2) : 359-362

Amblyomma variegatum (Fabricius), the tropical bont tick, is now widely distributed in the Caribbean. Eighteen islands countries are now or were recently infested with the tick. To stop the spread of this tick to other non-infested islands and to the mainland areas of South, Central and North America, a regional eradication program has been proposed and endorsed by the respective governments on each of the *Amblyomma variegatum* infested islands, including the French government and CARICOM member and associate member countries. The Food and Agriculture Organization of the United Nations (FAO) was requested by CARICOM, on behalf of member and associate member governments to : develop eradication proposals ; assist CARICOM member countries to maintain existing *Amblyomma* tick control programs ; advise and assist with the drafting of legislation required for implementation of an eradication program ; assist in the identification of funds to implement the eradication program and, if funding was obtained, coordinate the eradication campaign against this tick on all infested islands. The current distribution of the tick and the status of the proposed eradication program in the Caribbean are discussed.

Key words : Tick - *Amblyomma variegatum* - Tick control - Research projects - CARICOM - FAO - Caribbean.

GARRIS (G.I.), BARRÉ (N.), CAMUS (E.), WILSON (D.D.). Progresos de un programa de erradicación de *Amblyomma variegatum* en el Caribe. *Revue Élev. Méd. vét. Pays trop.*, 1993, **46** (1-2) : 359-362

Actualmente *Amblyomma variegatum* (Fabricius) se encuentra ampliamente distribuída en el Caribe. Dieciocho islas estan o estuvieron recientemente infestadas con esta garrapata. Con el fin de parar el avance de la garrapata hacia otros países de Norte, Sur y Centroamérica, se propuso un programa de erradicación regional, patrocinado por los gobiernos de cada estado insular infestado con *Amblyomma variegatum*, así como por los miembros de CARICOM y Francia. En representación de los países miembros y de los países miembros asociados, CARICOM pidió a la Organización para la Alimentación y la Agricultura de las Naciones Unidas (FAO), lo siguiente : desarrollo de proposiciones de erradicación ; ayudar a los países miembros de CARICOM en el mantenimiento de los programas de control existentes contra *Amblyomma* ; aconsejar y asistir en la elaboración de un programa de legislación, necesario para la puesta en marcha del programa de erradicación ; ayudar en la recolección de fondos para implementar el programa de erradicación y, si se obtiene el financiamiento adecuado, coordinar la campaña de erradicación contra esta garrapata en las islas infestadas. Se discute la distribución actual de la garrapata, así como el lugar que ocupa en el Caribe el programa de erradicación propuesto.

Palabras claves : Garrapata - *Amblyomma variegatum* - Control de garrapatas - Proyecto de investigación - CARICOM - FAO - Caribe.