NEW WORLD SCREW WORM ERADICATION (JAM/5/007) D4 New

MODEL PROJECT

CORE FINANCING

YEAR	Experts		Group Activity	Equipment	Fellowships		Scientific Visits		Group Training	Sub-Contracts	Misc. Comp.	TOTAL
	m/d	US $	US $	US $	m/d	US $	m/d	US $	US $	US $	US $	US $
1999	18/24	276,360	0	139,575	4/11	15,065	0/0	0	0	0	120,000	551,000
2000	11/0	169,950	0	0	4/5	15,000	0/0	0	0	0	70,050	255,000
2001	8/19	139,860	0	0	0/0	0	0/0	0	0	0	54,140	194,000

First Year Approved: 1999

OBJECTIVES: To eradicate the New World screwworm (NWS) by using the sterile insect technique (SIT), supported by prevention, control and quarantine measures.

BACKGROUND: The NWS, Cochliomyia hominivorax, is one of the most devastating livestock and wildlife pests in the western hemisphere. In endemic areas, livestock losses are formidable. It has been estimated that if the screwworm were to reinfest the United States, the US cattle industry losses in the first year would exceed US $800 million. According to a 1997 economic impact assessment of NWS in Jamaica, the increase in production costs and losses due to the pest are estimated to be between US $5.5-7.7 million annually. These losses include livestock mortality, continuous and recurrent costs of medication and of labour for animal inspection, and preventative and curative treatment. This study did not include the substantial losses due to reduction in milk yield; decreasing weight gains, prolonging the period to slaughter; and lower leather quality. The projected cost for this screwworm eradication programme is US $9 million. Within three years of eradication, the savings to farmers should exceed the cost of the entire programme. Human cases of NWS infestation are a problem in all endemic areas. The most common victims are infants, indigents and the mentally disabled. The hardest hit regions are usually rural, where livestock and humans share common areas, and exposure to the NWS is greatest. The NWS is dependent on warm blooded host animals to complete its life cycle. The life cycle is as brief as three weeks. Although the male is sexually aggressive and will mate at every opportunity, the female tends to mate once. The female lays eggs in open wounds (e.g. barbed wire cut) or orifices (e.g. neonatal umbilical cord, sinuses) of living animals. The hatched larvae burrow deeper into the body of the animal, where they consume host flesh, attract other screwworm females to the site and inhibit wound healing. The larvae mature, drop to the ground and burrow into the soil, where they develop through the pupal stage to emerge as adult flies seven days later. If wounds go untreated, infestation causes secondary bacterial infections, occasionally resulting in death. The natural distribution of the NWS extends from central USA south to the central-north of Argentina, the northern tip of Chile and the Caribbean countries of Cuba, the Dominican Republic, Haiti, Jamaica, Trinidad and Tobago. Due to its devastating impact on livestock, an eradication campaign was launched 30 years ago. The SIT has been used to control and eradicate the NWS from the United States, Mexico, and the Central American region south to Panama. Approximately 800 million hectares have now been cleared at a cost of around US $750 million . The benefits to livestock owners in these areas has been estimated at over US $3 billion. This project was drafted with close collaboration between the Agency, USDA/APHIS, FAO and the government of Jamaica. The SIT, combined with effective surveillance, wound treatment, animal movement control and quarantine measures, is currently the only proven method of screwworm eradication. This technique involves mass rearing flies under factory-like conditions, sterilization of pupae by radiation, and steady release of sterile flies into infested areas. Continuous release of sufficient numbers of sterile insects into the target area causes a gradual, progressive decline in the wild population. Eventually, the number of wild flies drops below the critical level necessary for population maintenance, and eradication results. Sterile fly dispersion activities can be reduced by implementing support activities on the ground designed to lower wild fly population density and distribution of the wild flies.

PROJECT PLAN: Twenty million sterile male NWS pupae will be obtained from the Tuxla-Gutierres plant in Mexico and flown to Jamaica. In Jamaica, the pupae will be placed in environmentally controlled chambers, producing an expected weekly yield of 15 million flies. The entire country will be covered by the aerial dispersal of flies, flights distributing 1,200 flies per square kilometer at least once a week over 24 months. A simultaneous ground programme will prevent reinfestation. Using this two-pronged approach, eradication will be complete by January 2001, with a further six months of monitoring.

NATIONAL COMMITMENT: Through a cash contribution of US $8,000,000, the government of Jamaica will provide pupal purchase and transport, fly release, salaries for 35 employees, equipment and laboratories necessary for training, a fly dispersal centre, a quarantine area and services, and a chilled fly chamber complex.

AGENCY INPUT: Expert services in SIT; an international co-director; training for technical field support staff, and equipment necessary for surveillance activities.

PROJECT IMPACT: Savings to Jamaican livestock producers will come in the form of reduced production costs through decreased labour needed to inspect and treat animals. The elimination or reduction of pesticide usage associated with screwworm infestation will have beneficial agricultural, environmental and human health ramifications. Decreased losses due to morbidity and mortality associated with the pest, improved leather quality, and increased weight gains and milk yields will all have a positive impact for Jamaican livestock productivity. Savings to Jamaican livestock producers will come in the form of reduced production costs through decreased labour needed to inspect and treat animals. Jamaican products will be more competitive domestically and internationally, and national self-sufficiency in basic food production will be strengthened. It will also eliminate a threat to human health.