



Our research group here at the Univ. of Massachusetts in Amherst, MA is in need of either adults or infested bulbs with the maggots. We are researching a virus that keeps the females from producing eggs and has never been reported in the U.S. In 1957, the virus was reported in adult bulb flies from France but it has never been reported in the U.S. Using PCR we have found two adults carrying the virus but the virus did not produce any pathology. In order to get a broader look at whether the virus is in the U.S. we need you to SEND US YOUR INFESTED BULBS. Read below and send us any adults frozen in sealed sandwich bags with some ice also in another bag. Send them to Dr. John Stoffolano, P.O. Box 295, Leverett, MA 01054. I do not use the university address because they delay shipment and open suspected containers. Send to my home as just stated. If you are within driving distance of our campus and have lots of adult flies we would love to come and collect. Give me a call at 413-545-1046. Leave a clear message if I am not in the office. Thanks for your help. We believe this virus can be manipulated to control adult flies. Best, Dr. Stoffolano

THE GREAT BULB FLY MYSTERY

You probably are enjoying the beauty of your narcissus and daffodil flowers, but beneath the soil there is a culprit lurking which may help solve the mystery of what two professors and an undergraduate in horticulture in the Stockbridge School of Agriculture at Umass Amherst are trying to solve. Entomologist John Stoffolano and Insect Virologist John Burand, with the help of undergraduate Jennifer Schaler, are trying to solve years of unknowing if the culprit, the large narcissus bulb fly, *Merdon equestris*, contains the salivary gland hypertrophy virus. The adult flies are robust and look like bees. They hover and fly around your bulb plants, mate, after which the female crawls to the base of the foliage usually after the flower has died and she lays an egg. She can lay up to 100 eggs and usually only lays one egg per plant, which avoids competition by the larva. The larva hatches out and crawls down and enters its sought after food source, which is the bulb. Once inside the bulb, the larva eats and eats until winter sets in. During the winter the larva remains rather dormant and in the spring crawls out of the bulb and up to just underneath the soil where it pupates. In the Amherst and other Northeastern areas, the adults emerge from the puparium in late April or early May. You may see them flying around feeding on flowers, mating, and living for about 9-17 days as adults. The mystery begins with looking for a virus, first reported in France in 1973 that causes the salivary glands to become enlarged due to the virus. At the same time it disables the reproductive system of both males and females. Thus, it may prove a useful biological control agent of a fly that is difficult to control because of where the larva lives. The only other flies having this type of virus are the common house fly, which has a worldwide distribution, and the tsetse fly, which is the bane of certain parts of Africa. A former student of Professor Stoffolano's found the virus in house fly in 1993 and another of his students, Dr. Chris Geden, currently with the USDA in Gainesville, Florida, has done considerable research on the virus in house fly. Drs. Burand and Stoffolano have collaborated on various aspects of the virus in

tsetse fly, but until now have not had access to the bulb fly. What has remained the great mystery since 1979 is whether the virus is found in the bulb fly in the United States. This past fall, Dr. Stoffolano was given an unsuspected treasure of ~~infected maybe~~ bulbs infested with the bulb fly larvae that possibly are infected by the virus ~~bulbs~~. These were planted in his garden in Leverett and they are now awaiting the emergence of the adult flies. Hopefully, these flies will help solve the mystery of the long sought after virus of the bulb fly. Dr. Burand and Jennifer Schaler will dissect the adult flies looking for enlarged salivary glands. If found, they will be removed for analyses, which will include transmission electron microscopy and examination using molecular techniques such as PCR using a special primer Dr. Burand obtained. The virus will also be stored at low temperatures for future studies. In a couple of weeks there will be much excitement when the first adult flies are examined for the virus in the salivary glands. Hopefully, their efforts will be realized and the long sought after mystery will be solved. If found, the next step is to explore various ways in which the virus can be used to control this usually unseen pest. Keep your fingers crossed.