

BCA Board Meeting – Duflo Chemical Spray
June 20, 2015

Members present: Marie Duink, Gail Roes, Eric Martin, Karl Keiffer, Pat Keiffer, Chris Murphy, Karen Murphy

Also present: Jeff Duflo and Rene Duflo

Jeff Duflo discussed primarily the science behind spraying for insects. This is a list of points made by Mr. Duflo.

From the Duflo Chemical Spray website:

“Duflo Spray Chemical was founded in 1955 as a result of a Maple Leaf Cutter outbreak and was owned by Thomas and Nancy Duflo. As a result of this outbreak, a transition into crop spraying operations soon followed. Around 1960, Black fly and Mosquito operations began with Municipalities in northern NY. Twin engine aircraft were then added to increase safety while flying over Congested areas. Duflo operations then specialized in Mosquito, Black fly, and Forest Insect control from 1970 all the way up to current times. In 1980 Duflo pioneered the development of a specialized delivery system for the Piper Aztec. Proofs of concept tests, for the hydraulically driven spray system were conducted and a successful test occurred February 4, 1982. In 1983, Aircraft were equipped with the new Micromist 900 spray System. Duflo spray Chemical Inc. was purchased by Jeff and Renee Duflo in 1985. FAA approval and an STC were awarded to Duflo Aerospray Systems in January 9, 1986. Later, on September 25, 1991 a Canadian STA was awarded to Duflo Aerospray Systems for the Micromist 900. Our first Micromist 900 Equipped Aztec was delivered to Brevard County Florida in 1992. During the 90’s subsequent Micromist 900 equipped aircraft were delivered to Brazoria Co Texas, Ontario Canada, Osceola Co. Florida, Cameron Parish Louisiana, Comanche Iowa, Dewitt Arkansa, Charleston SC., and to the State of Maryland. Duflo has worked internationally in Ghana Africa, the Dominican Republic for USAID, Haiti, and in the Bahamas. State of the art AgNav GPS’s were added in 1996 when they first came available for Aerial Application aircraft. Duflo helped develop a GPS System for large area mosquito control work in 1998. Today, Duflo works for several private customers, municipalities, State, and Federal agencies”. (Duflo, 2010)

Pilots:

- All FAA approved Commercial Licenses.
- Twin Engine Rating.
- Combined 8000 plus hours of Aerial Application Experience.
- Department Of Environmental Pesticide Applicator Certified.
- DEC Aerial applicator category Licensing.
- Owner holds a Bachelors of Science in Forest Biology, Minor in Wildlife, and an emphasis in Entomology.

Business:

- FAA Part 137 operator's certification for "Commercial Agricultural Aircraft Operations" USAIG insured Chemical /Public Liability meeting or exceeding all State Limits.
- Meets DEC and New York State Health Department licensing criteria.

Aircraft:

- FAA approved for populated ("Congested Area") operations.
- All Twin Engine Aircraft meet and exceed all FAA standards for Aerial Application.
- Agricultural Operation Certificates carried on board.
- Meet or exceed all Aircraft Manufacturers/ FAA maintenance requirements.

Spray System:

- Micromist 900 spray system Developed by Duflo Aerospray Systems Inc.
- Has earned Supplemental Type Certification (STC'd) by FAA.
- Meets or exceeds DEC, NYSDOH, USFS, and FAA operating requirements.
- Requirements include Spray output, Droplet characterization, and Digital in flight recording of all spray operations. (Duflo, 2010)

The following bulleted list represents items discussed by Mr. Duflo:

- Mr. Duflo has as B.S. in Forest Biology from SUNY ESF
- Spraying is very specific and directed by GPS. One house can be sprayed and not another. If businesses are not members or do not wish to be sprayed, he can "tighten up" the areas being sprayed
- Spraying only for adult insects
- The larger area you spray the less frequent you have to spray
- Technique and timing is critical to the success of the program. Timing relates to the life cycle of the insects being treated.

- Male Black flies arrive first to arrive and are non-biters
- Once the male black flies are present, it is critical that Mr. Duflo is made aware of their presence.
- The female black flies arrive about a week later. They need blood and will bite and then lay eggs (lots and lots of eggs)
- The most effective time to spray is after females arrive and before they have an opportunity to lay eggs
- Black flies can fly 30 miles or more. Just because you kill a large portion of the flies on the lake, doesn't prevent more from coming in.
- Mosquitoes arrive after the black flies
- Black Flies are active during the day. Mosquitoes are active at night. This is why Mr. Duflo is often seen flying at dusk as both species may be flying.
- The spray is more effective when the insects are flying.

PRODUCT

- Several products are used. Many are Pyrethrin family of insecticides
- "Pyrethrins are pesticides found naturally in some chrysanthemum flowers. They are a mixture of six chemicals that are toxic to insects. Pyrethrins are commonly used to control mosquitoes, fleas, flies, moths, ants, and many other pests." (NPIC, 2014)
- In addition, he uses a product referred to as PBO. This is a synergist that prevents the insect from developing a resistance to the insecticide.
- PBO is a safe product

- “Pyrethrins excite the nervous system of insects that touch or eat it. This quickly leads to paralysis and ultimately their death. Pyrethrins are often mixed with another chemical to increase their effect. This second chemical is known as a synergist. (NPIC, 2014)
- “What is permethrin? Permethrin is a pyrethroid insecticide that is similar to the natural insecticide, pyrethrum. Pyrethrum is found in the chrysanthemum flower. Permethrin can kill a broad range of pests, such as fleas, ticks, cockroaches, flies, and mosquitoes. Products with permethrin commonly contain piperonyl butoxide (PBO). The PBO increases the permethrin’s ability to control insects. Permethrin and other pyrethroids work by overexciting the nervous system of insects, eventually causing the insect to die.” (Agriculture, 2013)
- Mr. Duflo states the products reflect current best practice in the industry. If a better product becomes available, he will use it.
- The product is broken down by the sun and water
- The product is atomized into very small particles that are naked to the eye. This allows the product to sift through the trees, almost like a fog. The insect must come in contact with the insecticide. It is best when they are flying.
- Mr. Duflo often flies uses a variety of flying patterns to agitate the insects and get them flying as he sprays.
- The Cicero Swamp in Syracuse is closely watched by the Department of Health. Mosquitoes trapped are are tested for the Eastern Equine Encephalitis Virus (EEE). Mr. Duflo is contracted to spray the swamp each year. Mr. Duflo stated one day before a spray they captured 10,000 mosquitoes. After spraying a similar trap captured 26 mosquitoes.
- Technique and timing are critical and Mr. Duflo states he will not spray unless conditions are right. “I take pride in my work” and he does not wish to waste the money of the members.
- To apply product, the temperature must be above 70 and the wind must be less than 8 knots. Black fly is a day-biter and the mosquito is a night-biter. This is why dusk is an highly effective time to apply product
- He can do black flies in the morning if the temperature is high enough

- Communication is critical. Mr. Duflo need to be contacted at first sign of black flies. He will monitor and fly when the female arrive and before they lay eggs. (This is best case scenario and weather dependent.)
- “We have better and safer product and better tools to deliver it that we have every had”
- Duflo uses “cold aerosol spraying”. Using an aircraft to spray uses less product than any other method
- Because Brantingham Lake only receives 5-6 sprays each year, there is little chance of the insects developing a resistance
- This product does NOT treat ticks. Please be safe to protect yourself.

References

- Agriculture, F. D. (2013). *Frequently Asked Questions about Permethrin*. Retrieved from Florida Department of Agriculture and Consumer Services:
<http://www.freshfromflorida.com/content/download/3188/20049/Permethrin%20QA%203-20-13.pdf>
- Duflo, J. (2010). *History and Certification*. Retrieved from Duflo Chemical Spray, Inc:
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