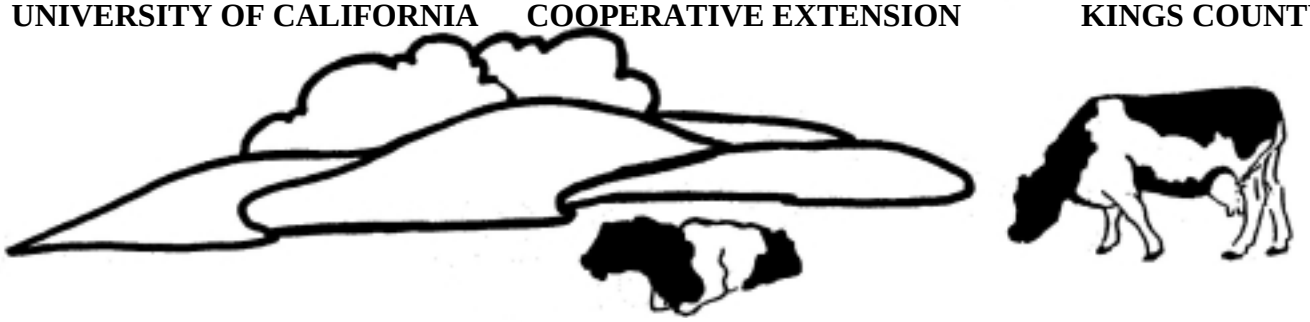
DAIRY NOTES

UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION KINGS COUNTY



May 2000

680 N. Campus Drive, Suite A website: http://kings.ca.us/kingsce Hanford, CA 93230
(559) 582-3211, ext. 2730 *email: ccollar@ucdavis.edu* Fax (559) 582-5166

Comparison of Pour-on Products for Stable Fly Control on Dairy Cattle

Stable flies (sometimes erroneously called "biting house flies") are blood-sucking flies whose painful bites cause cattle to exhibit behaviors such as headlong flight across the corral, repeated kicking to discourage the flies, and herd bunching attempts to avoid bites. Such activities raise the cow's temperature, expend energy, interrupt feeding, and risk injury. While stable fly activity typically is limited to early spring and late fall, severity of fly activity can result in significant lost production.

Stable flies preferentially feed on the lower portions of cattle, around the legs and belly, including the udder. They feed quickly and fly away, minimizing exposure to any insecticides applied to these areas. Additionally, insecticides applied to these body regions tend to be rubbed off by contact with vegetation and mud, or are removed when animals are washed prior to milking.

A field test was conducted by UC Cooperative Extension in 1998 to determine efficacy of pyrethroid pour-on products against stable flies on dairy cattle. While some of the products appeared to produce temporary reductions in fly numbers, none resulted in consistent fly suppression for more than 3 days. Therefore it is apparent that pour-on pyrethroid products are not useful for controlling stable flies on cattle.

The four pyrethroid pour-on fly control products tested included ***Boss*** (5% permethrin, Schering-Plough Animal Health), ***Brute*** (10% permethrin, Y-Tex Corporation), ***CyLence*** (1% cyfluthrin, Bayer Inc.), and ***Durasect*** (1% permethrin, Pfizer Animal Health).

Applications were made at label rate based on animal weight. Animals were treated once in early July, and stable fly numbers were monitored for three weeks. Approximately 3,400 animals were treated on five dairies.

All dairies used in this field test were located in California's Central Valley. Four treated pens and one untreated pen were used per dairy. Each animal in a pen was treated with one of the products. All pens on the dairy were in close proximity, allowing fly movement among pens.

Standard evaluation procedures were used to assess product efficacy in reducing stable fly numbers on the animals. Counts were made on fifteen animals per pen (treatment) on each dairy; animals were sampled randomly and no effort was made to count the same animals on follow-up dates.

Stable fly populations were declining in the test areas over the period of this field test, averaging 4 flies per animal in pre-treatment counts. All products reduced fly numbers for one day on some of the dairies, but none had any effect by the third day following treatment. Even when stable fly numbers on the animals decreased, the

reduction was not dramatic, averaging a drop from 7 flies per animal to 3 per animal. Thus, it does not appear that pour-on pyrethroid products are efficacious against stable flies on dairy cattle.

Because chemical control options are so limited, source reduction, or larval breeding site elimination, is particularly critical in stable fly suppression. Stable fly larvae develop in damp plant material such as soggy hay, old wet manure, and poorly composting lawn clippings. These materials should be spread in a thin layer to dry in the sun, or dealt with in some manner that will render them unsuitable for fly breeding. Spraying them with insecticides does not work because the chemical is absorbed by the plant material and degraded. Unfortunately adult stable flies can fly in from surrounding areas, so a single neighborhood source can result in widespread infestation.

Stable fly breeding usually does not occur within the corral, but instead is concentrated under fence lines or feed bunks, where material collects undisturbed. A small amount of old damp manure or decomposing wet feed can produce hundreds of stable flies. Shoveling this material into a wheel barrow and hauling it away to be spread and dried is the most effective stable fly control.

Collaborators on this project were ***Nancy C. Hinkle*** *(Dept. of Entomology, UC-Riverside),* ***Carol Collar*** *(UCCE Kings County),* ***Jerry Higginbotham*** *(UCCE Fresno County), and* ***Denise Mullinax*** *(Hilmar Cheese, formerly with UCCE Stanislaus County). Special thanks to the dairy cooperator at the Kings County test site,* ***Barreto & Silveira Dairy***

More on Flies

They are hard to escape this time of year. The wonderful weather that makes you want to fire up the barbeque for a great meal outdoors, is also the weather that brings out those nasty flies!

The first step in a successful control program is recognizing the types of flies that are invading your farm, and having a good understanding of their habits and behavior. UC has an excellent resource for you called "*Identification of Common Flies Associated with Livestock and Poultry, Leaflet # 2506*, reprinted February, 2000. This 13-page booklet is available for free from Western United Dairymen. You can phone in a request for the publication at (209) 527-6453 or you can fax in your request at (209) 527-0630. The booklet contains color illustrations and information about the biology of flies that can help you manage your fly control program. It may not help you when your neighbor blames flies from your place for ruining a Mother's Day picnic, but it can't hurt to be more knowledgeable about a subject when responding to complaints.

For example, did you know that there are more than 16,000 different species of flies in North America? About 50 of those species originate from or may be attracted to livestock operations, but fortunately only a few species occur in large numbers or have objectionable habits that make them serious pests of people and livestock. Unfortunately, those few troublesome species have a tremendous reproductive rate and can disperse several miles from a breeding source. How fast can they reproduce? As an example, if there were one fertile female house fly and ideal conditions, *over 15 billion flies* could result in as little as two months! Flies most typically found on dairies are house flies, stable flies, face flies and horn flies. The ones you are probably most familiar with and annoyed by are house flies.

Adult house flies are attracted to food, filth and waste materials where they feed and deposit their eggs. They usually feed at least twice a day. The dark spots that you see on walls, ceilings, overhead beams, pipes and corral fencing are the characteristic fly specks of fecal matter and vomit (yuck!). At night the adults can be seen resting on overhead surfaces, usually close to food and egg laying sources like manure and wet feed.

Temperature and humidity govern house fly activity; they are inactive at temperatures below 45ºF. Optimum activity occurs between 80ºF and 90ºF with humidity around 40%.

Flies pass through four development stages: egg, larvae (maggot) pupa and adult. Females can produce many batches of eggs in their 1 to 2 week life span under favorable conditions of warm weather and abundant food. There may be up to 150 eggs in each batch. The eggs hatch into larvae in 12 to 24 hours. The larvae feed and grow through 3 size changes during the next several days. The full-grown larva then crawls to a drier area to change into a pupa by becoming shorter, darker and harder. In this resting pupa stage the dark brown, oval shaped case does not feed, but transforms into an adult fly. The fly escapes from the pupal case by forcing an opening in one end of the shell like covering. Pupae are often buried under dirt and debris, and the newly emerged fly must make its way to the surface. Flies have been known to crawl upwards through 3 feet of soil! Mating takes place the first or second day after emergence and then the female is ready to lay eggs 3 or 4 days later. For the housefly, time required to complete this cycle from egg to adult is about 8 days.

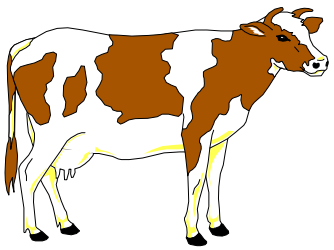
It is a daunting task, but the challenge is to keep fly numbers low from day one of the season. The best way to keep numbers low is to keep everything around the dairy as clean and dry as possible. Excellent sanitation is the cornerstone for any control program. Eliminating fly breeding sites will go a long way toward eliminating a nuisance.

Chemicals have been used to control flies for decades. In 1917 it was reported that dairy cattle could be sprayed with a mixture of creosote, coal tar and pine tar which increased milk production 3 lbs/cow per day, but unfortunately the milk was “tainted”! Chemical control has evolved from the use of natural products to complex chemicals. These products may have limited use due to fly resistance, environmental concern or failure to contact the fly with the chemical. A listing of currently approved products for fly control on dairies is included on the next page.

Baits, repellants, mechanical traps and fly parasites are other means that can supplement good sanitation in controlling flies. One of the most effective fly repellants ever reported consisted of covering horses with burlap in 1913! (stylish, but not very practical). Baits are used to attract flies to traps from which they can not escape. Parasitic wasps help by consuming fly larvae.

The good news is that we live in an arid environment. Keeping corrals dry during warm weather should not be a big problem. Fix leaky water troughs immediately and monitor manger misters to ensure that feed, bedding and corral surfaces are not getting wet in the process of trying to cool cows. Pay attention to fly prevention when you are building, repairing or remodeling animal facilities, especially feeding areas.

Flies have an important ecological niche; it’s just that most people prefer not to be included in that niche. Too bad they can’t be more like earthworms and go about their ecological “niching” unnoticed by humans.



Carol Collar
Farm Advisor, Kings County
Dairy, Livestock, Forages

Insecticides for Fly Control on Dairies (2000)

The following insecticides are registered for use on California dairies, according to the California Department of Pesticide Regulation. Insecticides differ in their efficacy against different pests; those that are effective against face flies may not necessarily be effective against horn flies. Local conditions, including insecticides used by neighboring farms in recent years, may affect insecticide efficacy. Insecticides are useful as part of an integrated pest management program, but should not be depended on to the exclusion of sanitation and other components. Check with your veterinarian or local Cooperative Extension office for advice on designing a fly suppression program.

Fly Control Insecticides		
Type of Application	**Active Ingredients**	**Examples**
Sprays	Tetrachlorvinphos Dichlorvos Tetrachlorvinphos + Dichlorvos	Rabon 50 WP, Rabon E.C. Vapona Concentrate Insecticide Ravap E.C
Backrubbers and facerubbers	Permethrin Tetrachlorvinphos + Dichlorvos	Ectiban, Insectrin Ravap
Pour-on	Permethrin	Synergized Expar Pour-on, Atroban
Dust bags	Tetrachlorvinphos	Rabon dust
Feedthrough	Tetrachlorvinphos	Rabon Oral Larvicide
Baits	Methomyl	Starbar Improved Golden Malrin Fly Bait

Fly Control Insecticides for Buildings and Barns

Chlorpyrifos (Dursban)
Cypermethrin
Dibrom (Naled)
Dimethoate (Cygon)
Methomyl (Golden Malrin fly bait)
Pyrethrins
Rotenone
Cyfluthrin (Tempo, Countdown)
Diazinon
Dichlorvos (Vapona, DDVP)
Malathion (Cythion)
Permethrin (Permectrin, Ectiban)
Resmethrin

Fly Control Insecticides for On-Animal Use

Cyfluthrin (CyLence)
Permethrin
Tetrachlorvinphos (Rabon, Stirofos)
Malathion
Pyrethrins
Vapona (DDVP)

The Vigilante bolus (active ingredient Dimilin, Hoechst-Roussel Agri-Vet Company) is administered to cattle to treat manure so flies are unable to develop in it.

Ear Tags Registered for Use in California -- 2000

Tag Name	Active Ingredient	Chemical Class	Manufacturer
Atroban Extra	Permethrin	Pyrethroid	Mallinckrodt
BovaGard	Diazinon	Organophosphate	Y-Tex
Cutter Blue	Fenthion	Organophosphate	Bayer
Cutter Gold	Cyfluthrin	Pyrethroid	Bayer
Diaphos R_x	Diazinon + Chlorpyrifos	Organophosphate	Y-Tex
Ectrin	Fenvalerate	Pyrethroid	Fermenta
Gard Star Plus	Permethrin	Pyrethroid	Y-Tex
Max-Con	Cypermethrin + Chlorpyrifos	Pyrethroid + Organophosphate	Y-Tex
New Z Diazinon	Diazinon	Organophosphate	Farnam
OPtimizer	Diazinon	Organophosphate	Y-Tex
Patriot	Diazinon	Organophosphate	Fermenta
Python	Cypermethrin	Pyrethroid	Y-Tex
Super Deckem	Fenvalerate	Pyrethroid	Destron-Fearing
Warrior	Diazinon + Chlorpyrifos	Organophosphate	Y-Tex
X-Terminator	Diazinon	Organophosphate	Destron-Fearing

Listed brand names are for illustrative purposes only and should not be construed to recommend one product to the exclusion of others. Always read and follow label directions. THE LABEL IS THE LAW.