

SHIRE OF GINGIN

BITING FLY UPDATE

The numbers of biting flies affecting livestock and residents have eased over the past month principally due to a concerted effort to target major commercial vegetable growing enterprises. Continual revisiting and monitoring of the major vegetable producers in the Shire has started to see an easing off of the biting fly outbreaks from what was experienced over summer. This demonstrates that continual vigilance and advice on treatment of crop residues infested with biting fly larvae can make a difference. But there is no need for any celebration as there are still too many biting flies and there are still some people being badly affected. It is no coincidence that the stable fly problem across this shire has continued to escalate with the infusion of large scale vegetable production from the early to mid 1990's. It is neither practical nor feasible for Shire Environmental Health Officers to continually monitor every major grower for biting flies when a more sustainable and long term solution will obviate the need for this continual "policing".

The local vegetable industry (Vegetables WA) have just recently contributed funding towards better management of their crop residues, which continue to be a primary source of the biting flies. Ideally a method of getting their crop residues off the ground as soon as harvest is complete (or whilst doing final harvest) would be the most beneficial. This material could then either be composted on site or be collected for composting or bio-fuel production elsewhere. That would remove the need for continual mechanical treatment (mulching, rotary hoeing) to break down the crop residues in the soil as well as the need for pesticide application (cost to producer, cost to the environment, risk of resistance development in biting fly population, cost to the consumer). Continual application of pesticides to control biting fly larvae in rotting crop residues is NOT a viable long term solution to this problem, either from an economic or environmental perspective, so we welcome the input of the vegetable industry towards finding a better way of managing their crop residues.



Fig.1. Rotting leaves and stalks left after harvest is complete from leafy crops such as cauliflower (LHS) and celery (RHS) allow biting flies to develop in huge numbers on sandy soils that are regularly watered overhead.

Past research and samples collected during 2010-2011 from commercial vegetable growers have shown that as many as 1,300 biting flies/m² can emerge from the soil of a trashed vegetable crop. Typically, one to several hundred biting flies develop from the rotting residue of broccoli, cabbage, cauliflower, celery and lettuce crops - the sheer amount of vegetable matter on the ground represents a significant potential risk for biting fly breeding if it is left to rot for more than 3-4 days and/or is simply rotary hoed into the soil with minimal physical breakdown of the material. Breaking down the crop residues with a high speed mulcher, then leaving them to dry on the surface with no overhead watering reduces biting fly development AND have the added benefit of: (i) allowing growers to put another crop in that area sooner; and (ii) reduced risk of disease transmission to the following crop.



Fig.2. The huge amount of leaves and stalks and reject produce left after harvesting is complete in crop such as cabbage (left) and silverbeet (right) provide a perfect breeding ground for biting flies.



Fig.3. Reject and/or damaged produce such as eggplant (aubergine) (LHS) and paprikas (bell peppers) (RHS) left on the ground to rot allow the biting fly to develop from every fruit. As these crops are picked daily for several months, the reject produce must ideally be either (i) physically removed, put into an open pit and deep buried weekly with at least 300mm of soil; or (ii) sprayed every week with a high volume pesticide application.

The worst crops for producing biting flies are celery, cauliflower, cabbage, lettuce, broccoli and eggplant. When a broccoli, cauliflower, cabbage or celery crop is finished being harvested, the sheer amount of vegetable matter on the ground represents an optimal breeding site for the biting fly. The residue of these crops produce >90% biting flies every time a sample is collected and the numbers they can produce are alarming to say the least.

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