Subject: [Fwd: The Ecologist -- "Pesticide Nun"]
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Subject: The Ecologist -- "Pesticide Nun"
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An article of interest:

PESTICIDE NUN

Jonathan Leake meets **Georgina Downs**, the one-woman whirlwind who's holding the pesticide industry and politicians to account

Downs lives in what looks like an idyllic village just outside of Chichester, West Sussex. The home she shares with her parents is surrounded by trees and fields – the kind of place most townies dream of.

When the family moved in over two decades ago, the adjoining field was used for grazing but, within a year, it was ploughed up for arable crops – and the spraying started.

Over the next few years, Downs' health deteriorated, but she didn't know why. By 1989, she had enrolled herself into a performing-arts college course, but kept having to take time off with a mysterious set of ailments.

Rajasana Otiende, a former fellow student, said: 'She had a big voice and was very confident, but there was a shadow over her. Some days she'd come in and have difficulty eating or drinking anything. When I asked her what was up, she'd open her mouth and there were blisters everywhere, right down her throat. She regularly suffered from headaches and flu-type illnesses as well, and was off sick a lot. We wouldn't see her for weeks on end.'

By her second year at college, Downs began suffering leg pain and had difficulty walking and, in September 1991, not long after she finished college, she was hospitalised with severe muscle wasting, overall muscle weakness and other chronic symptoms.

Downs was in hospital for a month, and underwent a series of tests and scans to try to find out why her health was failing. One by one, the doctors ruled out diseases such as multiple sclerosis

(MS), motor neurone disease (MND) and Parkinson's disease, but still couldn't identify the cause.

Downs, now 32, puts it more starkly, 'I was absolutely devastated. I didn't know what was wrong with me; my body just completely failed me. I had only just turned 18 and kept thinking that this is the time I should be out enjoying myself, but instead, I could see everything slipping away, and there was nothing I could do about it.'

Eureka!

On leaving hospital, Downs was determined to find out what had made her so ill. Was it her diet? Was it the cosmetics she was wearing? Was it a virus? For months, she ran through a host of possible causes until, one day, as she was sitting at home looking out of her window, she saw a tractor in the adjoining field spraying something. Suspicions raised, Downs made inquiries, and found that the tractor was spraying a cocktail of poisonous chemicals into the air next to her home. Astonished by this, Downs started down the road that has turned her into the scourge of the agrochemical industry.

First, she looked at how pesticides affected humans – and discovered striking similarities between their effects and the symptoms she had been suffering. These included the blisters, headaches, sore throats, flu-type fevers and bodily pain.

More worryingly, she came across studies showing that many pesticides can cause longer-term damage by attacking the nervous system, promoting cancer and disrupting hormonal systems.

For Downs, the obvious next step was to find out what she had been exposed to but, when she asked the farmer, he would not tell her. What's more, she found she had no right to know: incredibly, farmers are under no legal obligation to tell anyone what chemicals they have used or to provide any prior notification before they spray. Indeed, until January of this year, they were also under no obligation to even keep records of what they had sprayed.

To anyone outside farming, this is an astonishing situation. Across Britain, farmers spray around 31,000 tonnes of pesticides a year. All of these compounds are designed to kill some form of life and to do so in extremely low concentrations.

Every experience with chemicals of this kind shows the need for caution. In industry, this is a lesson that has been learned through bitter experience of handling toxic substances like mercury, asbestos, lead and carbon disulphide.

The historical poisoning of tens of thousands of workers with apparently low levels of such substances means that modern industry is now more tightly regulated by bodies like the Health and Safety Executive (HSE).

Farmers, by contrast, are under no legal requirement to be trained in the use of sprays, and are free to purchase and use whatever chemicals they choose. Once again, Downs makes the absurdity of this situation painfully clear: 'A farm worker is legally allowed to know what chemicals they are using and their potential health effects, plus they are required to wear protective equipment; yet members of the public, breathing in the very same air, are not.'

Barely pausing to draw breath, she continues, 'The same double standards apply far more widely. In particular, there is no obligation on farmers to observe a buffer zone around buildings or other areas used by people such as paths and parks.

'This means that farmers are legally allowed to spray right up to the open window of any occupied premises, whether it be a house, a school, a home for the elderly or any office or workplace. There are literally hundreds of thousands of places around Britain where farmland directly adjoins such establishments. One report puts the number of premises at half a million. If the figure were expanded to include all those homes, businesses and schools near enough to farmland simply

to be reached by spray contamination, it would run into the millions.'

So, for people living or working near farmland, perhaps the only guide to their risk of being poisoned is by checking to see what crops are growing around their homes and workplaces. Most, however, only make the link between their condition and exposure to farm sprays long after they have become ill.

What's clear is that the type of crop grown makes a huge difference to the potential exposure risk because each type has its own pesticide regime. Those living near cereal crops, for example, might expect the national average of five or six chemical dousings a season.

If, however, your local neighbourhood farmer is growing potatoes, then that figure goes up to around 13 sprays in a season. And if their speciality is fruit orchards such as apples, then 18 sprays a season is typical.

The risk is multiplied even more by the fact that many farmers will use a range of different chemicals in each application and will change these as crops mature, so dozens of different chemicals can be applied to a single crop – and expose those living around it – over one season.

For Downs, it was powerful evidence that pesticides were the cause of her illnesses, especially after she noticed that some of the sprays that she and her family were breathing were also stripping the paint from her father's car.

She tried complaining to the HSE and her local environmental health department, but to no avail – because the farmer was breaking no laws.

At this point, and following the lack of any assistance from the authorities, Downs decided it would be better to be away from home whenever the fields were sprayed. No small sacrifice, given that the main spraying season can run for five months or so. 'I ended up staying on friends' sofas and going from one place to the next for weeks at a time,' she explained bitterly. Adding with a laugh, 'I was literally living out of a suitcase. Friends nicknamed me 'the bag lady'.'

Enough's enough

By 2001, however, while staying with a friend, she decided 'enough was enough' and vowed to fight back. 'I remember thinking, if a farmer is legally allowed to be doing this, then there has to be something seriously wrong with the government's policy. From that moment on, I knew what I had to do. I had to change the government's policy on pesticides.'

Downs knew nothing about politics. Her naivety at that time becomes apparent when she admits that she thought her plan would only take a year. 'I decided that I would put everything else in my life on hold for a year – my singing, work, relationships – and just give it my best shot.' Five years on, and Georgina is known by her friends as the 'pesticide nun', having dedicated herself exclusively to this one issue.

What made her task even harder was that her prime target was not scientists or ministers, but a mathematical model. It's a model that has been used for years by the government's Advisory Committee on Pesticides (ACP) and the official regulator, the Pesticides Safety Directorate (PSD), to work out the risk such chemicals present to the public.

When scientists talk about mathematical models in such contexts, it implies some kind of carefully calculated and calibrated means of working out genuine risk. It also implies complexity of a kind that only another mathematician could challenge.

Downs, however, demolished the model with simple logic. She discovered that the model was no more than a piece of mathematical guesswork. It had never been formally published or subjected to peer review in any scientific journal. What's more, it was based on the assumption that 'bystanders' would only receive occasional, short-term exposure from the spray cloud at the time of the

application only and, furthermore, to only one individual pesticide at any time.

It was a model far removed from the real-life situation, where residents and communities living near fields suffer long-term exposure to complex cocktails of potentially deadly chemicals. As a tool for calculating real exposures and health impacts, it was irrelevant.

The government's chief scientific advisors on pesticides first became aware of Downs in July 2001, when she attended the ACP's annual open meeting. She asked a number of penetrating questions, including whether each member of the committee would be happy to be exposed in the same way as she and her family had been.

She left quite an impression on Professor David Coggon, the ACP's chairman, which was reinforced by regularly questioning him at subsequent conferences and private meetings.

It was in early 2002, after being accosted by Downs for two hours in a hotel bar, that Coggon invited her to give a presentation to the committee's 2002 open meeting on the adequacy of the 'bystander risk assessment.'

Little did he realise what he had unleashed, as it was this presentation that catapulted Downs and her campaign into the political and media spotlight. It included a video to illustrate the dangers of crop-spraying, made in her own back garden, starring a group of mannequins of a pregnant woman, two babies and a young child, all having a mock picnic.

It was simple, but effective. The video, taken as the adjoining crops were sprayed three times in one month, shows the mannequin family's repeated exposure to toxic chemicals as they sit on her lawn.

She said: 'I asked the committee members to raise their hands if they thought that the video showed an acceptable system for protecting public health. Not a single hand went up.'

Downs subsequently presented the committee with a database of the diseases she had found among rural residents and communities exposed to pesticides, which included clusters of cancer, leukaemia, non-Hodgkin's lymphoma, Parkinson's disease, ME (myalgic encephalomyelitis) and asthma, among other conditions.

Downs' data also included a substantial collection of case histories of people who had linked their ill-health to pesticides – many supported by their doctors. Some of the cases had been formally diagnosed as being pesticide-related ill-health, but there was no overall statistical analysis to support her case. However, the sheer volume of cases and the consistency of symptoms in so many geographically separate areas spoke for themselves.

Later, when the Royal Commission for Environmental Pollution (RCEP) carried out its own investigation, it, too, drew attention to the number and similarity of such cases, and recommended a proper, statistically based survey.

Downs' ACP presentation led to a meeting with Lord Whitty, the then farming minister, and Michael Meacher, the environment minister in December 2002. She showed them her video, and presented the case for a change in the regulations and legislation governing agricultural spraying. In particular, she wanted a ban on crop-spraying near homes, schools, workplaces and other places of human habitation, and direct public access to the information on the chemicals sprayed on crops.

What happened next can be interpreted in two ways. Either the ministers didn't realise the sheer scale of the inertia, vested interests and bad science that Downs was trying to tackle. Or they recognised a troublesome issue and cynically decided to fudge their response for long enough to make Downs give up and go away.

Whatever the thinking, the response of Alun Michael, who by this time had taken over from Lord Whitty as the DEFRA (Department of Environment, Food and Rural Affairs) minister responsible for pesticides, was to order two consultations on the safety of the rules on crop-spraying – but to have them carried out by the Pesticides Safety Directorate (PSD).

In effect, he was asking the PSD to investigate itself – which meant that, if it found any faults in the system, it would involve criticising its own protocols and, by implication, its own senior staff.

This, of course, was never going to happen. The PSD, along with the ACP and DEFRA's Chief Scientific Advisor Howard Dalton, advised ministers in June 2004 that the existing system was robust and provided adequate protection. The PSD had cleared itself of any failures and declared everything in the pesticide garden to be lovely. But its report to ministers has never been released to the public.

Meanwhile, Downs had been busy with the media and a flurry of newspaper, TV and radio reports had shown that this was an issue 'with legs'. What's more, Alun Michael, the rural affairs minister, despite publicly expressing confidence in the advice he had received, could see there had been a fudge. He decided to call in the RCEP and ask it to examine all the issues raised by Downs.

Breakthrough?

This was the first time in history that the work of a single campaigner had resulted in an inquiry by the Royal Commission. It was also likely to be the best-ever chance of having a full and independent inquiry into the archaic safety rules surrounding pesticide use in Britain.

The RCEP inquiry started on 3 August 2004, and ended with its final report, entitled 'Crop Spraying and the Health of Residents and Bystanders', published on 22 September 2005. By the end, it had heard evidence from a range of individuals and organisations, along with government agencies and advisors, and had travelled across Britain talking to people who reported that they, too, had been poisoned by farm chemicals.

One rural resident, who gave oral evidence to the RCEP, was Sally Brown, who lives surrounded by fields in a small village in Suffolk. Brown has reported acute health problems, including sore eyes and throat, headaches and nausea. In spring 1996, Brown was in her garden with one of her dogs when they were both covered in spray as the tractor passed the boundary.

The following summer, Brown's dog died of cancer and Brown was diagnosed with breast cancer. This could have been a coincidence but, Brown told the RCEP, she had always felt there could be a connection. She also informed the Commission members of a number of cancer clusters in her village and in other places nearby.

Another resident who gave evidence, Richard Bruce, has been recording cases of cancer, leukaemia, Parkinson's and other illnesses on the Isle of Wight for years (see box on page 56). Bruce himself has been exposed to pesticides through both his occupation and from living surrounded by sprayed fields, and now suffers from long-term neurological damage, while his wife Shirley has had breast cancer. Bruce's local GPs also gave evidence to the RCEP in support of Bruce's case, adding further concerns about similar illnesses among other islanders.

Among the many witnesses, Downs played a major role. She made a presentation to the RCEP's public meeting in September 2004 and gave oral evidence to the Commission a few months later.

The RCEP recognised her as an expert as well as a witness, asking her to peer-review their draft report before publication – something no other lay person has ever been asked to do.

On 22 September 2005, Professor Tom Blundell, then chair of the RCEP, delivered the judgment Downs had been waiting for. The mathematical model used by the regulators was indeed deeply flawed, as Downs had previously identified, and the chemicals approved under it were potentially dangerous to at least a million people in rural areas.

He said farmers should become obliged to warn anyone at risk of exposure – residents, workers, walkers and schools – whenever they planned to spray. Plus, they should keep public records of all the chemicals used and be prepared to show them to anyone on demand.

Blundell also wants the government to carry out a full epidemiological survey to find any links between pesticides and chronic ill health.

It was the kind of result far beyond what professional environmental groups such as the Pesticide Action Network (PAN) had been able to achieve, and they have relatively huge budgets compared with what Georgina has been working on. It was also one that industrial farmers and the agrochemical industry have been dreading. Any data showing that pesticides can damage health would leave them vulnerable to the same kinds of compensation claims that have beset companies promoting tobacco or, in the past, using asbestos.

Lower: Aerial view of Georgina Downs' house (the red dot, circled). The yellow line marks a five-metre buffer zone

Upper: A crop-sprayer passing by a house owned by the photographer (Vincent Fallon, Essex)

Such a result means Downs has won herself a reputation – and powerful enemies as well as friends. But whatever people think of her, they can't ignore her, as witnessed by *Farmers Weekly*'s recent decision to include her in a list of the top-20 power-players in UK farming.

Meacher, now a backbencher, is full of praise for Downs, albeit glad he is out of her way. He said: 'Georgina Downs is a phenomenal campaigner, the like of which I have never met. She is the kind of

person ministers dread because they are so persistent. But you cannot ignore her because she knows her subject, and what she is saying makes absolute sense.'

Blundell also praises her.

He said: 'She is a lay person, but she has provided us with a huge amount of information, and it is always accurate and useful.'

However, even though the RCEP report has vindicated Downs, she is very concerned that its recommendation that farmers observe five-metre 'no-spray' buffer zones alongside residential property and other buildings, in an attempt to decrease the likelihood of exposure for residents and bystanders, could ultimately undermine the effectiveness of the report.

And as ever, she's absolutely right. In principle, the idea of buffer zones is a good one, but why five metres? The RCEP is supposed to be a strictly scientific body, so one would expect it to have good research-based evidence to show that spray concentrations drop rapidly over this distance.

In fact, the opposite is true. There is extensive research into the way chemical sprays disperse in the air, and all show that they can spread over huge distances.

One reputable study carried out in California showed that pesticides could be detected up to three miles away from treated areas. Many such chemicals have been detected as far as 25 to 50 miles away from the point of release.

Another study published last year in the *Journal of the American Medical Association* linked pesticides used on farmland near schools with outbreaks of acute illnesses among pupils. A wealth of similar studies have convinced seven American states to impose no-spray buffer zones of up to 2.5 miles around schools.

So why did the RCEP recommend a buffer zone of just five metres? According to the RCEP, it was guided by evidence from the Silsoe Research Institute, a government-funded centre for agricultural science that has since been closed down. It had done research on how chemical sprays, in the form of droplets, can drift, and on technological issues such as the design of spray nozzles.

It had not, however, carried out any research into longer-term exposure issues such as those that Downs had been raising. Chemical sprays can, for example, settle out of the air, only to be reactivated by subsequent wind or rain. Nor had it looked at volatilisation or the long-distance spread of such chemicals. Above

PESTICIDE POISONING: THE EVIDENCE

Over the last five years, Georgina Downs has received thousands of emails, letters and telephone calls from rural villagers all over the world testifying to local clusters of acute and chronic illnesses and diseases. They are all united by the fact that their villages are surrounded by fields that are regularly sprayed with pesticides. The following are a fraction of the total, but serve to illustrate their stories well.

■ Over the last 10 years, Richard Bruce has been recording reported illnesses in his rural village of Thorley, on the Isle of Wight, along with reports from other nearby villages that are surrounded by sprayed fields. He has amassed over 242 reports of illnesses and diseases, including 106 cases of cancer, of which 40 – including cases of breast, stomach, bowel, brain, lung, skin, throat, mouth, liver, pancreas and testicular cancers – and 18 neurological diseases – including Parkinson's disease, motor neurone disease (MND), multiple sclerosis (MS) and myalgic encephalomyelitis (ME) – were reported in his own village. Other conditions include leukaemia, asthma, diabetes, joint and bone problems, as well as 14 patients with serious heart disorders. Many of these conditions have occurred over the last few years, with a number of them afflicting young children.

■ A small hamlet of 12 houses next to sprayed fields in North East Essex has seen five cases of cancer – one brain, one testicular, one breast and two skin cancers – as well as other conditions, including liver problems, over a period of only five years. Other diseases reported outside of that time frame include Parkinson's, multiple sclerosis, labyrinthitis (inflammation of the inner ear), epilepsy, miscarriages, asthma and acute allergic reactions.

■ A Worcestershire village has reported four cases of leukaemia, nine cases of cancer, including of the breast, prostate, bowel and skin, and six neurological diseases in just 50 properties – again over a five-year period. In addition, a number of dogs that had walked through fields shortly after crop-spraying have died from cancer. There have also been reports where entire ponds of fish have died following spraying.

■ Lamberhurst, Kent, has seen 38 incidents of chronic illnesses within a two-mile radius that include cancers (including of the breast and stomach), brain tumours, arthritis, strange blood disorders, lupus, fibromyalgia (widespread musculoskeletal pain) and ME (myalgic encephalomyelitis or chronic fatigue syndrome), including three cases in one house alone surrounded by sprayed fields).

■ In Coleby in Lincolnshire, 10 schoolchildren suffered from vomiting, headaches, fever and extreme rashes over the course of a few days. Their school is located next to sprayed fields, and the attacks occurred during the height of the spraying season.

■ In Blackwater, on the Isle of Wight, there were five cases of breast cancer in this tiny hamlet surrounded by sprayed fields.

■ Wellingore, in Lincolnshire, had four cases of cancer and two cases of leukaemia, all within a small area surrounded by pesticide-sprayed fields.

If you live in a rural area where pesticide-spraying takes place, please get in touch with Georgina at georgedownsuk@yahoo.co.uk.

all, neither Silsoe nor anyone else in the UK had ever looked at how pesticide sprays affect the health of people living and working around sprayed farmland.

For Downs and others, the decision to accept Silsoe's recommendation turned an otherwise excellent report from the RCEP into a potential disaster. If the government adopted the five-metre recommendation, it would mean no effective reduction in pesticide exposure, and a waste of all of their campaigning efforts. Which makes it all the more surprising that PAN has also been in support of a five- or six-metre buffer zone.

Downs said: 'I remain at a loss to understand how the RCEP could have considered five-metre buffer zones to be acceptable and protective. Most of the evidence submitted, except that from Silsoe, showed it was far too small a distance. It would be a travesty if Silsoe's five-metre recommendation turns out to be the undoing of the RCEP report.'

Since then, the picture has been muddied further with the ACP publishing its response to the RCEP report. The ACP's new report is a masterpiece of obfuscation, with Professor Coggon, its outgoing chair, dismissing most criticisms of its past failures.

More fudge, minister?

On the face of it, this leaves Lord Bach, the DEFRA minister now responsible for pesticides, with a real headache. The government's response to the RCEP report is due in the summer but, with two of his main advisory committees at loggerheads over whether crop-spraying threatens health, whose advice does he take?

The risk is that this apparent clash in advice will lead simply to another consultation or inquiry – and years of more delays. This is, of course, exactly the result the agrochemical industry has successfully achieved with every other report on rural pesticide use to date.

And yet, successive governments have had repeated warnings that agricultural chemicals, just like many of those used in industry, are potentially toxic to hundreds of thousands of people. There is no longer any doubt over the scientific and medical issues. Nor is there any doubt that the companies making such chemicals have long known about these concerns and done all they could to avoid dealing with them. The real problem now lies with ministers who are too gutless to act on the clear warnings and evidence.

In industry, medical evidence alone has never been enough to bring about new safety legislation. It was the growing pressure of union organisations and the threat of legal cases that prompted various governments to impose new safety rules.

More recently, there has been a similar victory over restricting smoking in public places as a way of preventing secondary smoke-inhalation. Again, the medical evidence on passive smoking had been around for years, but was mostly ignored by successive governments. It was only when those concerned by the evidence became properly organised that their campaign became irresistible.

In rural areas to date, there has been no effective organisation representing the interests of the hundreds of thousands of people being poisoned by pesticides – and so there has been no change in the law.

Downs has single-handedly transformed that situation. She has won every battle yet and, although she has not yet won the war, she has got closer than anyone else so far.

Downs currently has a Judicial Review application lodged in the High Court against the government for failing in its duty to protect the public from pesticides.

She said: 'I am not going to give up on this fight. There are too many people having their lives ruined by these chemicals. The government and the farming industry can throw what they want at me, but whatever it is, I'll be back.'

■ Jonathan Leake is Science Editor for *The Sunday Times*.

BREAKING NEWS:
Georgina Downs has been nominated campaigner of the year in the Observer Ethical Awards 2006. It would help to raise her profile and further her campaign hugely if you took the trouble to vote for her. To do so, visit Georgina's campaign site at **www.pesticidescampaign.co.uk** and click on the voting link.

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