POLITICO

‘Parkinson’s is a man-made disease’

Europe’s flawed oversight of pesticides may be fueling a silent epidemic, warns Dutch neurologist Bas Bloem. His fight for reform pits him against industry, regulators — and time.

Text and photos by **BARTOSZ BRZEZIŃSKI** in Nijmegen, Netherlands

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In the summer of 1982, seven heroin users were admitted to a California hospital paralyzed and mute. They were in their 20s, otherwise healthy — until a synthetic drug they had manufactured in makeshift labs left them frozen inside their own bodies. Doctors quickly discovered the cause: MPTP, a neurotoxic contaminant that had destroyed a small but critical part of the brain, the substantia nigra, which controls movement.

The patients had developed symptoms of late-stage Parkinson’s, almost overnight.

The cases shocked neurologists. Until then, Parkinson’s was thought to be a disease of aging, its origins slow and mysterious. But here was proof that a single chemical could reproduce the same devastating outcome. And more disturbing still: MPTP turned out to be chemically similar to paraquat, a widely used weedkiller that, for decades, had been sprayed on farms across the United States and Europe.

While medication helped some regain movement, the damage was permanent — the seven patients never fully recovered.

For a young Dutch doctor named Bas Bloem, the story would become formative. In 1989, shortly after finishing medical school, Bloem traveled to the United States to work with William Langston, the neurologist who had uncovered the MPTP-Parkinson’s link. What he saw there reshaped his understanding of the disease — and its causes.

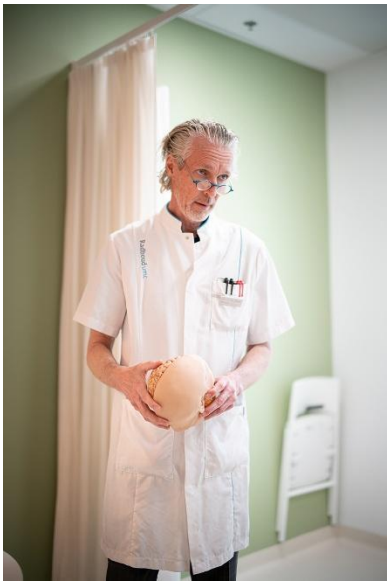
“It was like a lightning bolt,” Bloem tells me. “A single chemical had replicated the entire disease. Parkinson’s wasn’t just bad luck. It could be caused.”

The making of a man-made disease

Today, at 58, Bloem leads a globally recognized clinic and research team from his base at the Radboud University Medical Center in Nijmegen, a medieval Dutch city near the German border. It treats hundreds of patients each year, while the team pioneers studies on early diagnosis and prevention.

The hallway outside Bloem’s office was not hectic on my recent visit, but populated — patients moving slowly, deliberately, some with walkers, others with a caregiver’s arm under their own. One is hunched forward in a rigid, deliberate shuffle; another pauses silently by the stairs, his face slack, not absent — just suspended, as if every gesture had become too costly.

On its busiest days, the clinic sees over 60 patients. “And more are coming,” Bloem says.



Bloem’s presence is both charismatic and kinetic: tall — just over 2 meters, he says with a grin — with a habit of walking while talking, and a white coat lined with color-coded pens. His long, silver-gray hair is swept back, a few strands escaping as he paces the room. Patients paint portraits of him, write poems about him. His team calls him “the physician who never stops moving.”

Unlike many researchers of his stature, Bloem doesn’t stay behind the scenes. He speaks at international conferences, consults with policymakers, and states his case to the public as well as to the scientific world.

His work spans both care and cause — from promoting movement and personalized treatment to sounding the alarm about what might be triggering the disease in the first place. Alongside his focus on exercise and prevention, he’s become one of the most outspoken voices on the environmental drivers of Parkinson’s — and what he sees as a growing failure to confront their long-term impact on the human brain.

“Parkinson’s is a man-made disease,” he says. “And the tragedy is that we’re not even trying to prevent it.”

When the English surgeon James Parkinson first described the “shaking palsy” in 1817, it was considered a medical curiosity — a rare affliction of aging men. Two centuries later, Parkinson’s disease has more than doubled globally over the past 20 years, and is expected to double again in the next 20. It is now one of the fastest-growing neurological disorders in the world, outpacing stroke and multiple sclerosis. The disease causes the progressive death of dopamine-producing neurons and gradually robs people of movement, speech and, eventually, cognition. There is no cure.

Age and genetic predisposition play a role. But Bloem and the wider neurological community contend that those two factors alone cannot explain the steep rise in cases. In a 2024 paper co-authored with U.S. neurologist Ray Dorsey, Bloem wrote that Parkinson’s is “predominantly an environmental disease” — a condition shaped less by genetics and more by prolonged exposure to toxicants like air pollution, industrial solvents and, above all, pesticides.

Most of the patients who pass through Bloem's clinic aren't farmers themselves, but many live in rural areas where pesticide use is widespread. Over time, he began to notice a pattern: Parkinson's seemed to crop up more often in regions dominated by intensive agriculture.

"Parkinson's was a very rare disease until the early 20th century," Bloem says. "Then with the agricultural revolution, chemical revolution, and the explosion of pesticide use, rates started to climb."

Europe, to its credit, has acted on some of the science. Paraquat — the herbicide chemically similar to MPTP — was finally banned in 2007, although only after Sweden took the European Commission to court for ignoring the evidence of its neurotoxicity. Other pesticides with known links to Parkinson's, such as rotenone and maneb, are no longer approved.

But that's not the case elsewhere. Paraquat is still manufactured in the United Kingdom and China, sprayed across farms in the United States, New Zealand and Australia, and exported to parts of Africa and Latin America — regions where Parkinson's rates are now rising sharply.

Once the second-most widely sold herbicide in the world — after glyphosate — paraquat helped drive major profits for its maker, Swiss-based and Chinese-owned company Syngenta. But its commercial peak has long passed, and the chemical now accounts for only a small fraction of the company's overall business. In the U.S., Syngenta faces thousands of lawsuits from people who say the chemical gave them Parkinson's. Similar cases are moving ahead in Canada.

Syngenta has consistently denied any link between paraquat and Parkinson's, pointing to regulatory reviews in the U.S., Australia and Japan that found no evidence of causality.

The company told POLITICO that comparisons to MPTP have been repeatedly challenged, citing a 2024 Australian review which concluded that paraquat does not act through the same neurotoxic mechanism. There is strong evidence, the company said in a written response running to more than three pages, that paraquat does not cause neurotoxic effects via the routes most relevant to human exposure — ingestion, skin contact or inhalation.

"Paraquat is safe when used as directed," Syngenta said.

Still, for Bloem, even Europe's bans are no cause for comfort.

"The chemicals we banned? Those were the obvious ones," Bloem says. "What we're using now might be just as dangerous. We simply haven't been asking the right questions."

A chemical Europe can't quit

Among the chemicals still in use, none has drawn more scrutiny — or survived more court battles — than glyphosate.

It's the most widely used herbicide on the planet. You can find traces of it in farmland, forests, rivers, raindrops and even in tree canopies deep inside Europe's nature reserves. It's in household dust, animal feed, supermarket produce. In one U.S. study, it showed up in 80 percent of urine samples taken from the general public.

For years, glyphosate, sold under the Roundup brand, has been at the center of an international legal and regulatory storm. In the United States, Bayer — which acquired Monsanto, Roundup's original maker — has paid out more than $10 billion to settle lawsuits linking glyphosate to non-Hodgkin's lymphoma.

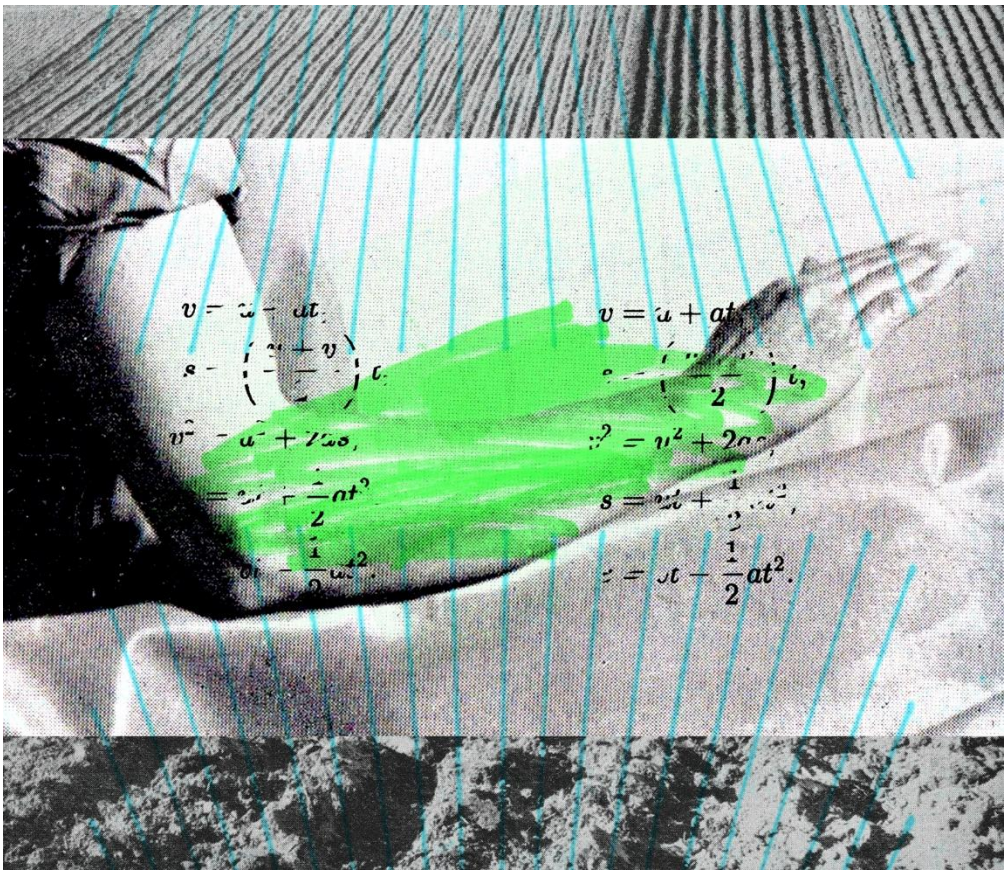
Glyphosate is now off-patent and manufactured by numerous companies worldwide. But Bayer remains its top seller — achieving an estimated €2.6 billion in glyphosate-related sales in 2024, even as market competition and legal pressures cut into profits.

In Europe, lobbyists for the agricultural and chemical sectors have fought hard to preserve its use, warning that banning glyphosate would devastate farming productivity. National authorities remain split. France has tried to phase it out. Germany has promised a full ban — but never delivered.

In 2023 — despite mounting concerns, gaps in safety data and political pressure — the European Union reauthorized it for another 10 years.

While most of the debate around glyphosate has centered on cancer, some studies have found possible links to reproductive harm, developmental disorders, endocrine disruption and even childhood cancers.

Glyphosate has never been definitively linked to Parkinson's. Bayer told POLITICO in a written response that no regulatory review has ever concluded any of its products are associated with the disease, and pointed to the U.S.-based Agricultural Health Study, which followed nearly 40,000 pesticide applicators and found no statistically significant association between glyphosate and the disease. Bayer said glyphosate is one of the most extensively studied herbicides in the world, with no regulator identifying it as neurotoxic or carcinogenic.



But Bloem argues that the absence of a proven link says more about how we regulate risk than how safe the chemical actually is.

Unlike paraquat, which causes immediate oxidative stress and has been associated with Parkinson's in both lab and epidemiological studies, glyphosate's potential harms are more indirect — operating through

inflammation, microbiome disruption or mitochondrial dysfunction, all mechanisms known to contribute to the death of dopamine-producing neurons. But this makes them harder to detect in traditional toxicology tests, and easier to dismiss.

“The problem isn’t that we know nothing,” Bloem says. “It’s that we’re not measuring the kind of damage Parkinson’s causes.”

Responding, Bayer pointed to paraquat as one of only two agricultural chemicals that studies have linked directly to the development of Parkinson’s disease — even as Syngenta, its manufacturer, maintains there is no proven connection.

The EU’s current pesticide evaluation framework, like that of many other regulatory systems, focuses primarily on acute toxicity — short-term signs of poisoning like seizures, sudden organ damage or death. Manufacturers submit safety data, much of it based on animal studies looking for visible behavioral changes. But unlike for the heroin users in California, who were exposed to an unusually potent toxin, Parkinson’s doesn’t announce itself with dramatic symptoms in the short term. It creeps in as neurons die off, often over decades.

“We wait for a mouse to walk funny,” Bloem says. “But in Parkinson’s, the damage is already done by the time symptoms appear.”

The regulatory tests also isolate individual chemicals, rarely examining how they interact in the real world. But a 2020 study in Japan showed how dangerous that assumption may be. When rodents were exposed to glyphosate and MPTP — the very compound that mimicked Parkinson’s in the California heroin cases — the combination caused dramatically more brain cell loss than either substance alone.

“That’s the nightmare scenario,” Bloem says. “And we’re not testing for it.”

Even when data does exist, it doesn’t always reach regulators. Internal company documents released in court suggest Syngenta knew for decades that paraquat could harm the brain — a charge the company denies, insisting there is no proven link.

More recently, Bayer and Syngenta have faced criticism for failing to share brain toxicity studies with EU authorities in the past — data they had disclosed to U.S. regulators. In one case, Syngenta failed to

disclose studies on the pesticide abamectin. The Commission and the EU's food and chemical agencies have called this a clear breach. Bloem sees a deeper issue. "Why should we assume these companies are the best stewards of public health?" he asked. "They're making billions off these chemicals."

Syngenta said that none of the withheld studies related to Parkinson's disease and that it has since submitted all required studies under EU transparency rules. The company added that it is "fully aligned with the new requirements for disclosure of safety data."

Some governments are already responding to the links between Parkinson's and farming. France, Italy and Germany now officially recognize Parkinson's as a possible occupational disease linked to pesticide exposure — a step that entitles some affected farmworkers to compensation. But even that recognition, Bloem argues, hasn't forced the broader system to catch up.

Where science stops, politics begins

Bloem's mistrust leads straight to the institutions meant to protect public health — and to people like Bernhard Url, the man who has spent the past decade running one of the most important among them.

Url is the outgoing executive director of the European Food Safety Authority, or EFSA — the EU's scientific watchdog on food and chemical risks, based in Parma, Italy. The agency has come under scrutiny in the past over its reliance on company-submitted studies. Url doesn't deny that structure, but says the process is now more transparent and scientifically rigorous.

I met Url while he was on a visit to Brussels, during his final months as EFSA's executive director. Austrian by nationality and a veterinarian by training, he speaks precisely, choosing his words with care. If Bloem is kinetic and outwardly urgent, Url is more reserved — a scientist still operating within the machinery Bloem wants to reform.

Still, Url didn't dispute the core of the critique. "There are areas we don't yet take into consideration," he told me, pointing to emerging science around microbiome disruption, chemical synergy and chronic low-dose exposure. He didn't name Parkinson's, but the implications were clear. "We're playing catch-up," he admitted.

Part of the problem, he suggested, is structural. The agency relies on a system built around predefined methods and industry-supplied data. "We assess risk based on what we're given, and what the framework allows us to assess," Url said. "But science evolves faster than legislation. That's always the tension."

EFSA also works under constraints that its pharmaceutical counterpart, the European Medicines Agency, does not. "EMA distributes money to national agencies," Url said. "We don't. There's less integration, less shared work. We rely on member states volunteering experts. We're not in the same league."

A pesticide-free farm in in Gavorrano, Italy. | Alberto Pizzoli/AFP via Getty Images

Url didn't sound defensive. If anything, he sounded like someone who's been pushing against institutional gravity for a long time. He described EFSA as an agency charged with assessing a food system worth trillions — but working with limited scientific resources, and within a regulatory model that was never designed to capture the risks of chronic diseases like Parkinson's.

"We don't get the support we need to coordinate across Europe," he said. "Compared to the economic importance of the whole agri-food industry … it's breadcrumbs."

But he drew a sharp line when it came to responsibility. "The question of what's safe enough — that's not ours to answer," he said. "That's a political decision." EFSA can flag a risk. It's up to governments to decide whether that risk is acceptable.

It was a careful way of saying what Bloem had said more bluntly: Science may illuminate the path, but policy chooses where — and whether — to walk it. And in a food system shaped by powerful interests, that choice is rarely made in a vacuum.

"There are gaps," Url said, "and we've said that."

But gaps in science don't always lead to action. Especially when the cost of precaution is seen as an economic threat.

The doctor who won't slow down

Evidence from the field is becoming harder to ignore. In France, a nationwide study found that Parkinson's rates were significantly higher in vineyard regions that rely heavily on fungicides. Another study found that areas with higher agricultural pesticide use — often measured by regional spending — tend to have higher rates of Parkinson's, suggesting a dose-response relationship. In Canada and the U.S., maps of Parkinson's clusters track closely with areas of intensive agriculture.

The Netherlands has yet to produce comparable data. But Bloem believes it's only a matter of time.

“If we mapped Parkinson’s here, we’d find the same patterns,” he says. “We just haven’t looked yet.”

In fact, early signs are already emerging. The Netherlands, known for having one of the highest pesticide use rates in Europe, has seen a 30 percent rise in Parkinson’s cases over the past decade — a slower increase than in some other regions of the world, but still notable, Bloem says. In farming regions like the Betuwe, on the lower reaches of the Rhine River, physiotherapists have reported striking local clusters. One village near Arnhem counted over a dozen cases.

“I don’t know of a single farmer who’s doing things purposely wrong,” Bloem says. “They’re just following the rules. The problem is, the rules are wrong.”

To Bloem, reversing the epidemic means shifting the regulatory mindset from reaction to prevention. That means requiring long-term neurotoxicity studies, testing chemical combinations, accounting for real-world exposure, genetic predisposition and the kind of brain damage Parkinson’s causes — and critically, making manufacturers prove safety, rather than scientists having to prove harm.

“We don’t ban parachutes after they fail,” Bloem says. “But that’s what we do with chemicals. We wait until people are sick.”

His team is also studying prevention-focused interventions — including exercise, diet and stress reduction — in people already diagnosed with Parkinson’s, in one of the most comprehensive trials of its kind. Still, Bloem is realistic about the limits of individual action.

“You can’t exercise your way out of pesticide exposure,” he says. “We need upstream change.”

Bloem has seen it before — the same pattern playing out in slow motion. “Asbestos,” he says “Lead in gasoline. Tobacco. Every time, we acted decades after the damage was done.” The science existed. The evidence had accumulated. But the decision to intervene always lagged. “It’s not that we don’t know enough,” he adds. “It’s that the system is not built to listen when the answers are inconvenient.”

The clinic has grown quiet. Most of the staff have left for the day, the corridors are still. Bloem gathers his things, but he's not finished yet. One more phone call to make — something he'll take, as always, while walking. As we stand up to go into the hallway, he pauses.

"If we don't fix this now," he says, "we're going to look back in 50 years and ask: 'What the hell were we thinking?'"

He slips on a pair of black headphones, nods goodbye and turns toward the exit. Outside, he's already striding across the Radboud campus, talking into the cold evening air — still moving, still making calls, still trying to bend a stubborn system toward change.

Graphics by Lucia Mackenzie.

https://www.politico.eu/article/bas-bloem-parkinsons-pesticides-mptp-glyphosate-paraquat/