

Addendum to Hidden in Plain Sight

Pesticide Drift In Public Spaces

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By Prairie Rivers Network



Project Purpose

This study expands on our previous data set consisting of six years of pesticide (primarily herbicides and fungicides) drift monitoring and leaf tissue sampling across Illinois, summarized in our 2024 report “Hidden in Plain Sight”. Up to this point, our ability to monitor and sample locations multiple times throughout the growing season has been extremely limited. Therefore, the current study was designed to gather exposure information at numerous sites throughout the summer months.

All samples collected were analyzed to identify the presence of pesticides in public spaces where people work and children play: parks, playgrounds, and schoolyards. Approximately 50% of schools, public parks, and playgrounds in Illinois are within ½ mile of agricultural land, or other large areas (such as a golf course) that typically apply pesticides.

As noted in “Hidden in Plain Sight”, many of the pesticides that are widely used in agricultural production or turf management are known to volatilize, even with proper application under appropriate environmental conditions (Bedos et al., 2002), and travel far from their application site (Mayer et al., 2024).

Our previous results have shown at least some symptoms of herbicide exposure at every site sampled. The purpose for this addendum is to present a summary of the number and type of pesticides (herbicides and fungicides) that are detectable in public spaces across Illinois. To our knowledge, this is the first ever survey of its kind in the nation.

Methods & Sampling Locations

During May, June, July, August, and September of 2025, 10 public parks and/or school playgrounds were sampled monthly. Sites are identified by county throughout this report. Both trees and herbaceous plants were monitored for symptoms of herbicide injuries at each site during the months of May, July, and September. Trees selected for pesticide testing were located near areas of play, walking paths, ponds, or picnic areas, and remained constant for each site throughout the duration of the project. Foliage samples were taken monthly, and were analyzed as previously described in the 2024 report. In order to diversify monitoring methods and better evaluate the frequency and types of pesticide drift events we also deployed silicone monitoring bands monthly. Foliage samples and band samples were analyzed using the same mass spectrometer to reduce differences in data output and standardize the methodology.

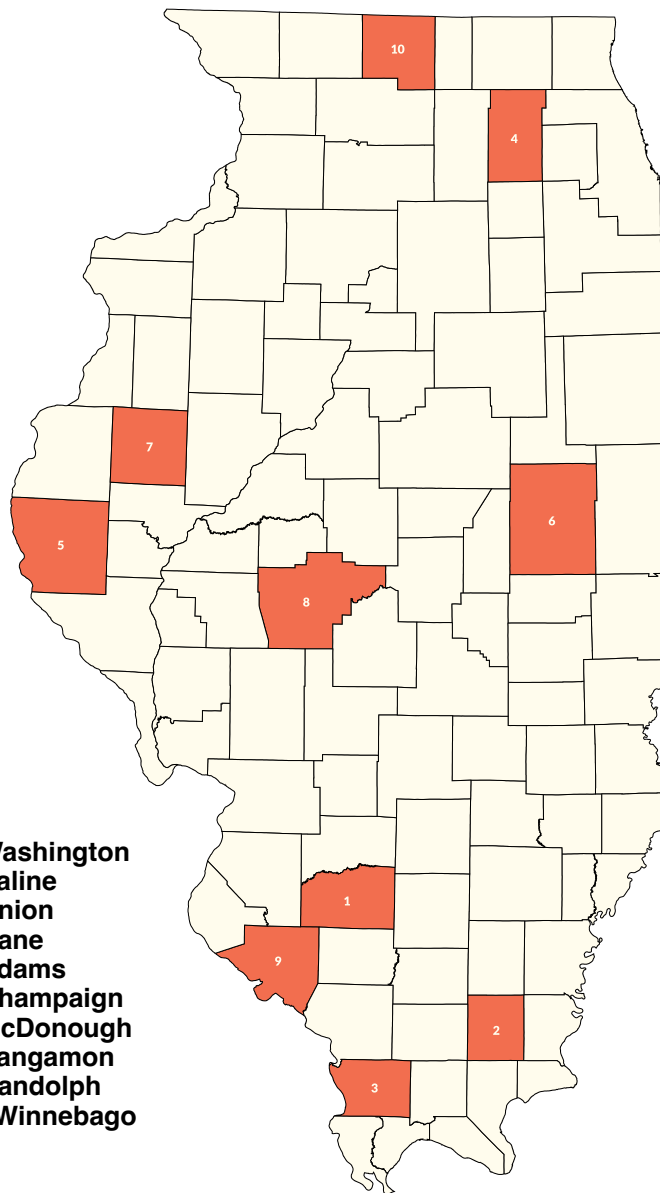
Sites were selected based on geographic region, importance to the surrounding community, and relevant socioeconomic and human health data factors, such as asthma and cancer rates. Each site varied in proximity to agricultural lands, golf courses, and other potential sources of pesticide drift. Four locations were selected in Southern Illinois, four across Central Illinois, and two in Northern Illinois.





Map of Illinois Counties Where Parks & Schoolyards Were Monitored & Sampled

Figure 1

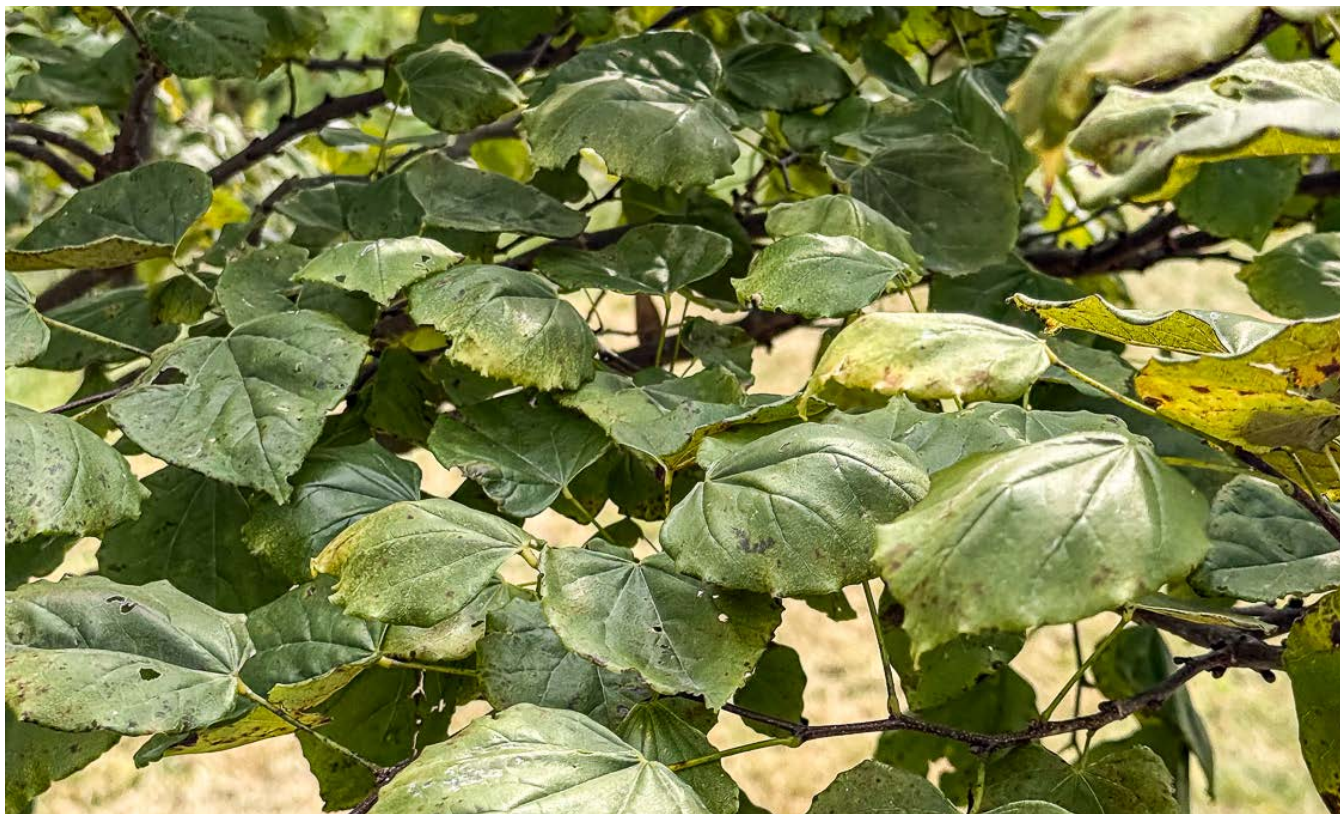


1. Washington
2. Saline
3. Union
4. Kane
5. Adams
6. Champaign
7. McDonough
8. Sangamon
9. Randolph
10. Winnebago

Results & Discussion

A total of 88 samples were collected and analyzed. They included 50 samples of leaf tissue and 38 monitoring bands (out of 40 deployed bands, 2 bands were unrecoverable). Leaves and monitoring bands were analyzed for 60 compounds in total, but no one sample was tested for all 60. In order to maximize the number of samples analyzed across the state, we prioritized analysis of the most common herbicides and fungicides used during the month they were collected.

A total of 296 detections of 18 pesticide compounds were identified in the 88 samples. There were 211 instances of 17 different pesticides identified in leaf tissue samples. There were 85 instances of 10 different pesticides identified in monitoring band samples. One pesticide, dimethenamid, was only found with monitoring bands.



Site Location	May		June		July		August		September	
County	Leaf	Band	Leaf	Band	Leaf	Band	Leaf	Band	Leaf	
Washington	2	3	4	3	4	5	7	1	6	
Saline	3	4	3	3	6	3	4	0	6	
Union	2	3	4	3	2	0	3	0	3	
Kane	1	3	4	3	2	2	5	0	2	
Adams	4	3	3	4	5	2	6	0	4	
Champaign	3	3	5	4	6	1	9	0	5	
McDonough	3	4	2	4	3	1	7	0	5	
Sangamon	3	3	5	3	6	1	3	0	4	
Randolph	2	3	6	3	5	0	7	3	6	
Winnebago	2	4	4	3	3	0	7	0	5	

Table 1: Number of pesticides detected in each leaf sample and monitoring band each month at each monitoring site.

At least one pesticide was found at each sampling event. Every month, between 1 and 10 pesticides were detected at each site (Table 1). As a general rule, we observed that bands were more effective at capturing pre-emergent herbicides such as metolachlor, acetochlor and atrazine, as well as fungicides. Leaf tissue analysis was effective at capturing growth regulator herbicides and glufosinate. If the same pesticide was detected in a band and leaf tissue during the same testing period, we recorded that as one exposure event. This reasoning is discussed in more detail in Figure 3. All tests are reported as presence or absence of the pesticide. Pesticide detectability varies between species and can be influenced by weather conditions, but some with long half-lives may remain detectable for more than 30 days after their exposure/uptake by the plant. Whether or not a detection result was considered a new drift event is discussed below (Figure 3).

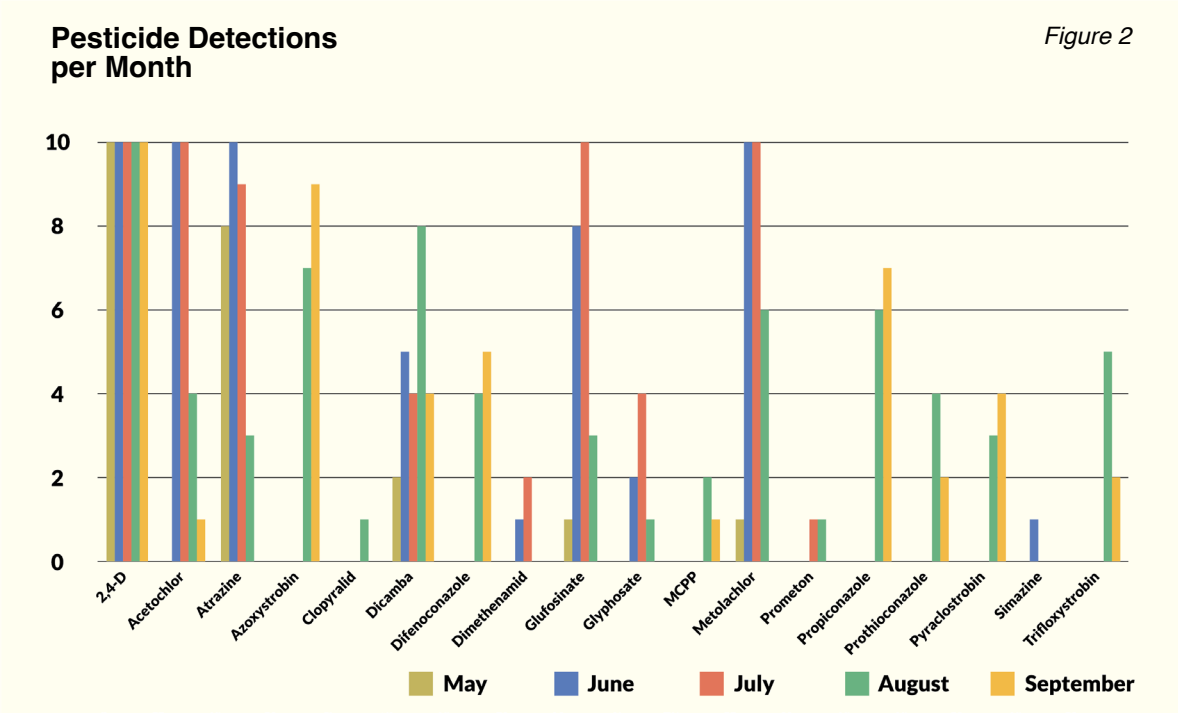


Figure 2: Illustrates the number of times a pesticide was detected across sites and months.

All 10 sites in 10 Illinois counties demonstrated the presence of herbicides and/or fungicides during 5 warm weather months in 2025. The plant growth regulator herbicide, 2,4-D, was detected more often than other pesticides. This is partly because it is one of the most widely used herbicides in Illinois.

There were exposures to 2,4-D, dicamba, and metolachlor every month, and atrazine, acetochlor, and glufosinate in 4 of the 5 months of the study. Several of the pesticides detected are banned in some other countries due to human health and/or environmental concerns (e.g., carcinogenicity, endocrine-disrupting activity, groundwater contamination, and/or drift injurious to crops).

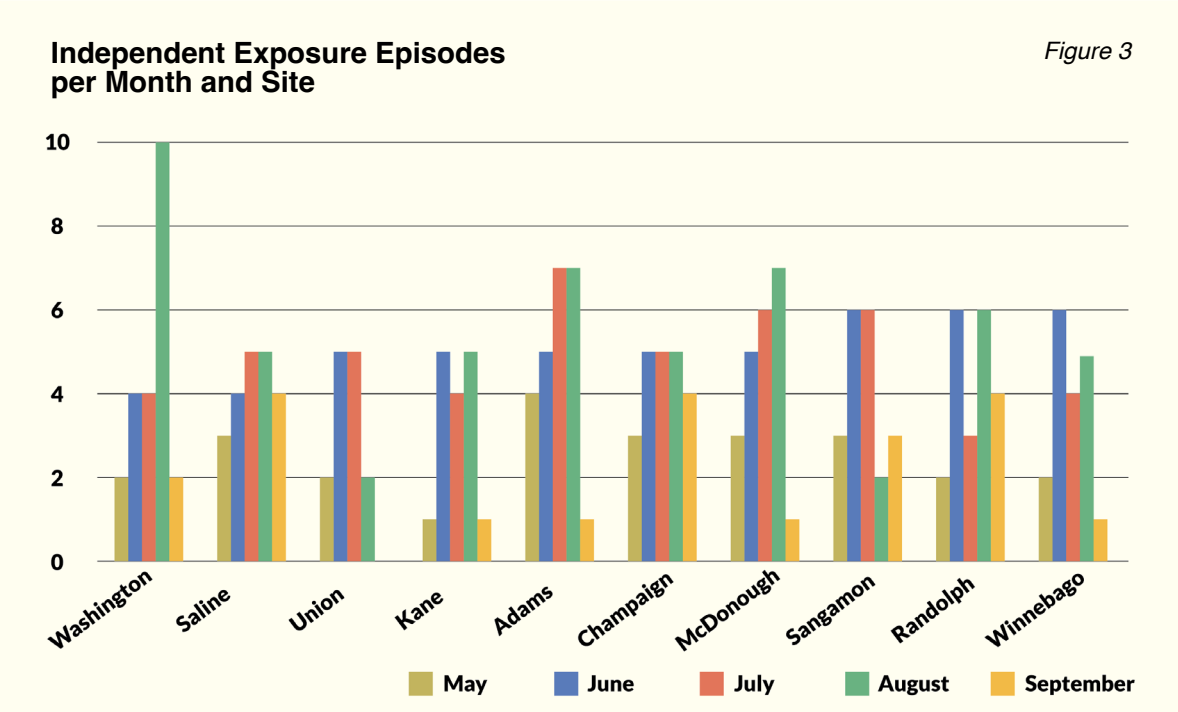


Figure 3: Illustrates the number of independent exposure episodes (IEE) for each month at every site.

We utilized the same method to determine an independent exposure episode (IEE) as we did previously in our 2024 summary report. When a new herbicide was detected during a sampling period (via tissue or monitoring band), we recorded it as a separate drift event. If levels of a herbicide(s) increased in a subsequent sample, we also recorded this as an independent exposure. Due to the monthly replacement of the bands, any time a compound was found on a band, it was an IEE.

The months of June, July, and August had the most IEEs recorded at each site. Adams County had the highest number of IEEs for any of our monitoring locations for the entire project with 24. Washington County had the highest total of IEEs for one month—10 in August.

It is important to recognize that while we can document drift events through the appearance or worsening of symptoms in plants, or through periodic repeated sampling, these results should be considered a baseline, and this is the minimum amount of exposures that are occurring. We still cannot fully determine the total number of drift events at each site, how far pesticides are traveling, or how many locations those pesticides are coming from. Additionally, due to financial constraints, not all pesticides that could be airborne were included in our analysis.

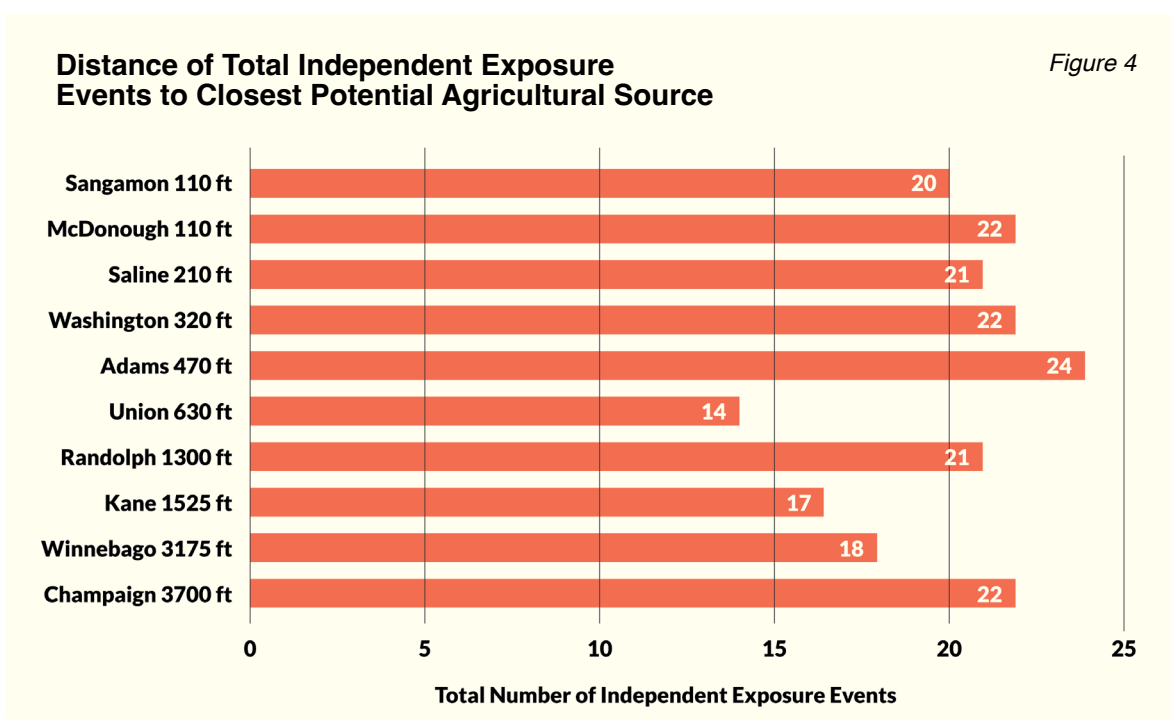


Figure 4: Illustrates the distance of the sampled tree and monitoring band location to the closest potential source of drift. Notice that there is little difference in detection numbers between sites with nearby and far away potential sources, highlighting how far pesticides are traveling.

With the exception of one park (Saline County) where drainage maintenance and minimal herbicide application occurred on a stream bank before monitoring began, no evidence of herbicide use was present at any of the sites. Many parks and schools confirmed that no pesticides (including herbicides) were used on the grounds, including sports fields.

As with our full data set that was published in 2024, distance data from the location of a sampled tree or monitoring band to the closest potential source was obtained using onsite investigations, satellite imagery, and digital map tools (e.g., Google Earth). Due to the variety of pesticides detected in our sampling and the differing uses for them, selecting a potential source for every pesticide detection would prove cumbersome.

Land areas that could be identified as potential sources include agricultural fields or pastures, golf courses, transportation and utility rights of way, commercial, industrial, and residential areas, and areas of intense targeted herbicide treatments (e.g., invasive weed control). Due to the presence of chemicals associated with cropland applications and/or the proximity of cropland at all sites, Figure 4 only identifies distances to the closest potential cropland.

The distances we present are significant underestimates of how far pesticide drift is actually traveling across the landscape. Two key reasons may explain this. First, potential sources were identified as the closest area from which the drift of pesticides present in samples could have originated—not as confirmed application sites or proven causes of—the observed off-target symptoms or contamination. Second, no distance measured was the “end” of drift; it is just a point beyond which we did not or could not measure in a particular circumstance. These observations do not suggest a threshold distance beyond which there would be no pesticide exposure.

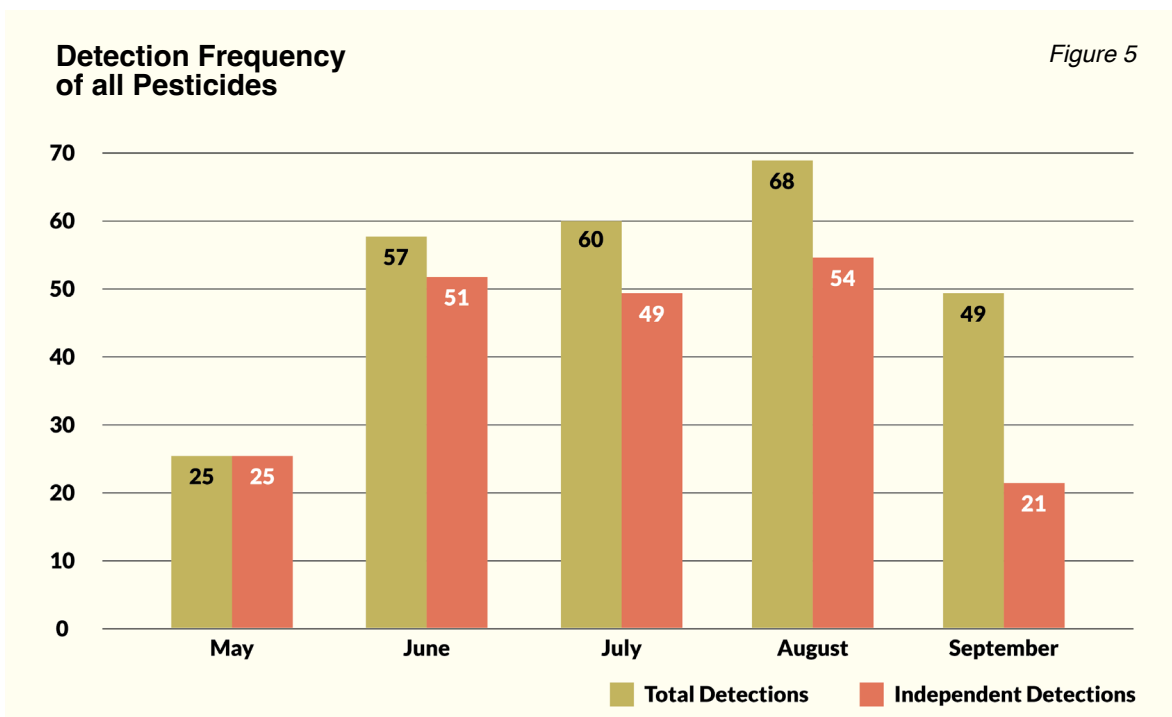


Figure 5: Illustrates the total number of times a pesticide was detected at all sites each month. At any given site, if a pesticide was found in a band and leaf tissue sample in the same month, it was recorded as a single detection.

While pesticide detections and drift events occurred at each site every month throughout the growing season, June, July and August had the most pesticides detected in bands and leaf tissues (Figure 5). As mentioned previously, they were also the months with the most IEEs.



Conclusions

Pesticide drift and chemical trespass were evident, not only in trees monitored for physical symptoms of drift, but in the analysis of leaf tissue and monitoring bands from all 10 locations in 10 Illinois counties during each of the five sampling periods in 2025. Even with these limited sample numbers, an average of 20 (range 14 to 24) separate pesticide exposure events were detected at the 10 study sites.

Pesticides frequently detected include chemicals considered by the International Agency for Research on Cancer to be possible (2, 4-D (2018)) or probable (glyphosate (2017)) carcinogens. They also include chemicals that are banned in some other countries (glyphosate, atrazine, acetochlor, simazine). Herbicides were detected throughout the growing season, and in late summer months detections of fungicides were also frequent. These findings also include exposure to atrazine, a restricted use pesticide. Restricted use pesticides are chemicals recognized by the U.S. EPA to have the potential to be harmful to the environment and cause injury to applicators or bystanders.

These data demonstrate frequent and likely long-lasting exposures to pesticides throughout the five warm weather months at the 10 study sites in 2025. Due to both drift generated during applications and subsequent secondary drift (e.g., vapor drift), exposures are unarguably occurring at all hours in outdoor parks and school yards, including peak outdoor activity times for children and adults. These data reinforce and extend observations recorded in our previous report (2024) that suggest, given the documented distances over which drift is occurring, that similar chemical trespass into both public and private outdoor spaces is the norm in Illinois, rather than the exception—and we could find no regions or public spaces that were unaffected in our monitoring.

It is increasingly obvious that current herbicide/fungicide use practices are not preventing human or plant exposures to chemicals from off-target pesticide drift.

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