Welcome to the latest edition of our ASD newsletter. It's been quite a while since we last produced a new issue, but we have been busy improving, expanding and using the data. As the databases are run on a very tight budget, we give priority to keeping the database up to date. In this issue you will find summaries of recent database developments, information on how we develop our datasets and so how they are best used, and brief descriptions of our key applications.

Recent development activity

In terms of our data most expansion has been seen in the PPDB ecotoxicity data. New datasets for various beneficial arthropod species have been added including ground beetles, parasitic wasps, predatory mites, ladybirds and lacewings. However, there are still some significant gaps. The data on terrestrial plants has also been expanded. In recent weeks (and still on going) there has been a major review of aquatic species data. This has seen data for rooted aquatic plants (parrot feather) added and the data for free-flowing aquatic plants (duck weed) reviewed. The review process has added more information on endpoints and methodology. This review process is still ongoing for algae and this, revised dataset, should be available late August 2025.

Elsewhere in the PPDB we have also added data for the half-life of an active substance in the atmosphere due to photochemical and oxidative degradation and, more recently, data identifying 'forever chemicals' has been added. Last year, in collaboration with the pesticide industry, our data on groundwater metabolites was expanded and validated. Of course, many new substances are added each year.

On the various ASD websites, we have added facilities for the industry to alert of us of new data and other information. You will also see a 'User survey' which helps us better understand how the data is being used, which supports our decisions on where further development is needed. In the user Support section, there is a new document on 'Understanding our data' (summarised below) and a form for reporting errors.

At the top of every pesticide profile page three data 'alerts' are shown which are simple indicators generated using the interpretation of the substance properties using a simple rule-base to categorise each substance as high, moderate or low with respect to environmental fate, ecotoxicity and human health.

| Environmental fate	Ecotoxicity	Human health
🟡	🔴	🔴

Understanding our data

We have been developing our three agricultural databases for well over two and a half decades and, in that time, there has been significant changes in the data used to evaluate environmental fate, (eco)toxicity and human health impacts. Not only are many more parameters needed but also the format of data in terms of preferred endpoints, measurement techniques and metrics has changed. As the science moves on the old pesticides tend not to be revisited and so the new data format for these old substances is often not available. Consequently, our data sets are not 'pure' meaning that the data is not, necessarily identical across all chemicals. As an example, ecotoxicological endpoints may vary in terms of the species tested, its life stage, the duration of the test, the endpoint reported and the measurement units. When we develop a dataset, we start with preferred parameter (e.g. 96 hr LC_{50} *Oncorhynchus mykiss* or *Lepomis macrochirus* in mg/L) and this will be our first-choice data. If this exact information is not available, then we will substitute for the best data we can find. Regulatory data (e.g. that within regulatory dossiers) is our first choice but where that is not available, we will search databases and general literature. Any derivation from our preferred data choice will be given in the associated data fields. This includes our 'Quality Barometer' which provides a guide to the confidence we have in the data. It is vitally important that when using our data the exact nature of the value given is understood by taking note of the additional information provided.

How the data is being used

Page loads (,000)
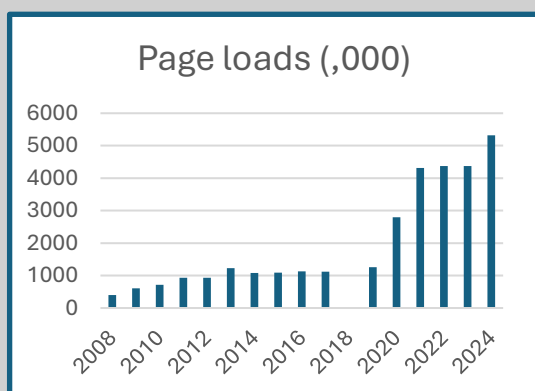
The graph opposite shows how our user base has grown over the years and the increase over the last four years has been well beyond our expectations. Searching literature databases (e.g. Google Scholar) it's clear that our data is supporting a significant amount of research globally. Applications include monitoring studies, developing and validating mathematical models, decision support tools and environmental indicators as well as supporting pesticide discoveries.

We also use the data extensively ourselves in our own research. As an example, over the last few years we have worked with Fera Science and Defra to develop a UK Pesticide Load Indicator (PLI) to support pesticide monitoring and policy development. The UK PLI consists of 20 load metrics: 4 environmental fate metrics (covering behaviour in the environment such as persistence and mobility) and 16 ecotoxicity metrics (covering toxicity to non-target wildlife species). These metrics are calculated based on standardised measures compiled as part of the PPDB. The per kilogram value of the indicator can then be combined with estimates of the mass of application (based on the UK Pesticide Usage Survey - PUS) to examine patterns in load across space and time. The PLI is being used to support a national target to reduce pesticide load by at least 10% by 2030, using 2018 as a baseline year (as outlined in the UK Pesticides National Action Plan 2025).

As part of an EU Horizon funded research project, Framework, a prototype software tool has been developed to support the process of assessing farmland landscapes with respect to their potential effects on ecosystem services and biodiversity. Known as the Farmland Ecosystem Assessment Support Tool (FEAST), the tool integrates a range of biodiversity assessment techniques and recently two pesticide indicators: the PLI and the Total Applied Toxicity (TAT) have been added to the software. The TAT is like the PLI and is used to assess temporal trends in how changes in pesticide use and associated toxicities are reflected in different species groups. An aggregated form the TAT (ATAT) is being developed for use in Headline indicator 7.2 under the Kunming-Montreal Global Biodiversity Framework (GBF) of the Convention on Biological Diversity. The PPDB team are supporting the development of ATAT as part of an FAO expert group working to refine the methodology.

Data access

Our databases are still free to use online and are also free of adverts or links to external sites (other than our official collaborators). The databases are also available, under licence, as MS Access or MS Excel files. More detailed datasets are available in these two formats. Bespoke sub-sets of our data can be provided for a small fee. We are always happy to discuss your pesticide data or indicator needs.

If you want more information on anything in this newsletter or on any aspect of our databases, please contact us. Similarly, if we have something wrong or something is missing, please let us know.

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