

Nove raziskave razkrivajo, da so mešanice pesticidov zelo razširjene v okolju, kar zahteva okrepljene regulativne ukrepe

Prelomna študija iz projekta SPRINT, ki ga financira program Evropske unije Horizon, je razkrila zaskrbljujočo resničnost: ostanki pesticidov so razširjeni tako v kmetijskih okoljih kot v stanovanjskih okoljih, kar vzbuja skrb za okolje in zdravje ljudi. Te ugotovitve, ki imajo pomembne posledice za odločevalce v Evropski uniji, poudarjajo nujno potrebo po celovitih regulativnih ukrepih za obravnavo potencialno daljnosežnih vplivov sočasnega pojavljanja pesticidov.

Že desetletja se pesticidi po vsem svetu uporabljajo za povečanje produktivnosti kmetijske pridelave, vendar so bili kumulativni učinki njihovih ostankov večinoma spregledani. Znanstvena skupnost vse pogosteje razkriva zaskrbljujoč trend: ostanki pesticidov, za katere se tveganje pogosto ocenjuje za vsako snov posebej, se v resnici obsežno mešajo v ekosistemih. To vprašanje ni omejeno na kmetijska polja in vodna telesa, temveč tudi na domove kmetov in njihovih sosedov.

Projekt SPRINT je izvedel akcijo terenskega vzorčenja v 10 evropskih državah, ki je identificirala ostanke pesticidov na vseh lokacijah študije [<https://doi.org/10.1371/journal.pone.0259748>]. Nedavno je bil objavljen prvi recenzirani dokument, ki predstavlja rezultate vzorčenja [<https://doi.org/10.1016/j.envint.2023.108280>]. Ta edinstven nabor podatkov je sprožil zaskrbljenost glede posledic tako široke porazdelitve ostankov pesticidov.

Ekipa SPRINT je analizirala več kot 200 ostankov pesticidov v več kot 600 okoljskih vzorcih tako z ekoloških kot s konvencionalnih kmetij. Vzorčene matrice so vključevale tla, vodo iz vodnih teles, sedimente voda, pridelke, zunanji zrak in prah v zaprtih prostorih. Zanimivo je, da študija razkriva, da je 86 % testiranih vzorcev vsebovalo ostanke pesticidov in 76 % mešanice pesticidov. Skupno število različnih pesticidov, odkritih v različnih matrikah, je bilo od 76 v zunanjem zraku, 78 v pridelkih, 99 v sedimentih, 100 v tleh do 197 v prahu v zaprtih prostorih. Večina teh pesticidov je na odobrenem seznamu EU, vendar nedavno in dolgo prepovedani ostanki predstavljajo pomemben del mešanice pesticidov. Ostanki glifosata so najpogosteje odkriti z visokimi koncentracijami v vseh proučevanih okoljskih vzorcih.

Ugotovitve o prahu v zaprtih prostorih so še posebej osupljive, saj bi to lahko imelo možne posledice za zdravje posameznikov, ki živijo na kmetijah in na podeželju [<https://doi.org/10.1016/j.scitotenv.2023.167797>]. Prah v eni od kmečkih hiš je vseboval ostanke 121 različnih pesticidov. Čeprav študija ni ocenila specifične ravni izpostavljenosti prebivalcev, je zaskrbljujoče, da sta več kot dve tretjini ostankov, ugotovljenih v prahu, razvrščeni v skladu z zbirko podatkov o lastnostih pesticidov (PPDB) kot "zelo nevarni" za sesalce in so povezani s škodljivimi učinki na zdravje ljudi. Na podlagi rezultatov je študija predlagala nov kazalnik pesticidov, ki temelji na razvrstitvi na nevarnosti, za ocene ekosistema in zdravja ljudi, ki se lahko uporabijo pri doseganju cilja zmanjšanja pesticidov strategije Od vil do vilic.

Profesorica Violette Geissen z Wageningen University & Research, koordinatorka projekta SPRINT, je poudarila daljnosežen pomen teh ugotovitev in dejala: *"Naše raziskave poudarjajo, da vprašanje mešanic pesticidov presega kmetijska polja; doseže gospodinjstva tistih, ki delajo na kmetijah. in njihove sosednje skupnosti. Rezultati kažejo, da niso le mešanice ostankov pesticidov precej pogoste v kmetijskih in stanovanjskih okoljih, ampak tudi, da so lahko v teh okoljih zelo zapletene in spremenljive. Potrebujemo bolj niansirano razumevanje vpliva kemičnih mešanic na terenu in s tem povezanih podatkov o izpostavljenosti in odzivu, da bi bolje razumeli ekosistem in tveganja za zdravje ljudi. Nujno potrebujemo integrirane ocene tveganja, ki odražajo resnično kompleksnost teh zelo razširjenih mešanic pesticidov."*

Naslednja faza projekta SPRINT se bo posvetila ocenjevanju tveganj za ekosistem in zdravje ljudi, ki jih predstavljajo identificirane mešanice pesticidov. Projekt je opremljen z izčrpnimi podatki in želi razviti nov kazalnik, prilagojen za regulativne namene, s čimer bi nosilec odločanja v EU zagotovil informacije za podporo orodij za spopadanje z naraščajočimi izzivi, ki jih predstavljajo mešanice pesticidov.

Končni cilj je zagotoviti zdrave ekosisteme in življensko ter delovno okolje za delavce v kmetijstvu in splošno populacijo.

Za dodatne informacije ali za intervju z vodjo projekta SPRINT kontaktirajte:

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O projektu SPRINT: Projekt SPRINT, ki ga financira program Evropske unije Horizon, je v ospredju znanstvenih raziskav o vplivih mešanic pesticidov na kmetijstvo in zdravje ljudi. Z multidisciplinarnim pristopom in prizadevanji za zbiranje podatkov brez primere si projekt prizadeva razviti orodje za oceno globalnega zdravstvenega tveganja za oceno vplivov pesticidov na okolje in zdravje ljudi ter predlagati več poti prehoda za zmanjšanje uporabe in tveganja pesticidov.

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Zbirka podatkov o lastnostih pesticidov (PPDB) je obsežna relacijska zbirka podatkov o več kot 1800 pesticidih in njihovih metabolitih. Razvit je bil predvsem za podporo ocenam tveganja. Podatki, ki jih hranimo, vključujejo informacije o registraciji, fizikalno-kemijske lastnosti, toksikološke končne točke, podatke o zdravju ljudi in poslovne informacije.

New Research Reveals Pesticide Mixtures Widespread in Environment, Urging Enhanced Regulatory Measures

A groundbreaking study from the SPRINT project, funded by the European Union's Horizon program, has unveiled a concerning reality: pesticide residues are pervasive in both agricultural environments and residential settings, raising concerns for environmental and human health. These findings, which have significant implications for European Union decision-makers, emphasise the urgent need for comprehensive regulatory measures to address potentially far-reaching impacts of the co-occurrence of pesticides.

For decades, pesticides have been employed globally to bolster agricultural productivity, yet the cumulative effects of their residues have been largely overlooked. The scientific community are increasingly unveiling an alarming trend: pesticide residues, often assessed for risk on a substance-by-substance basis, are in fact extensively mingling in ecosystems. This issue is not confined to agricultural fields and waterbodies but also in the very homes of farmworkers and of their neighbours.

The SPRINT project undertook a field sampling campaign in 10 European countries that identified pesticide residues at all study sites [doi.org/10.1371/journal.pone.0259748]. The first peer-reviewed paper presenting the sampling results has recently been published [<https://doi.org/10.1016/j.envint.2023.108280>]. This unique dataset has raised concerns about the consequences of such a wide distribution of pesticide residues.

The SPRINT team analysed 200+ pesticide residues in over 600 environmental samples from both organic and conventional farms. The sampled matrices included soil, water, sediments, crops, outdoor air, and indoor dust. Remarkably, the study reveals that 86% of the tested samples contained pesticide residues and 76% mixtures of pesticides. The total number of different pesticides detected in the different matrices ranged from 76 in outdoor air, 78 in crops, 99 in sediments, 100 in soil to 197 in indoor dust. Most of these pesticides are on the approved EU list, but recently and long banned residues represent a significant part of the pesticide mixtures. Glyphosate residues are the most frequently detected with high concentrations over all environmental samples studied.

The indoor dust findings are particularly striking, as this might have possible implications on the health of individuals living in farmhouses and rural areas. Dust in one house contained residues from 121 different pesticides. Although the study did not assess the specific level of exposure experienced by the inhabitants, it is concerning that over two-thirds of the residues identified in the dust are classified according to the Pesticide Properties Database (PPDB), as being “highly hazardous” to mammals and are linked to adverse human health effects. Based on the results, the study proposed a new prioritization hazard-based indicator of pesticides for ecosystem and human health assessments that may be applied in the achievement of the pesticide reduction goal of the Farm to Fork Strategy.

Professor Violette Geissen from Wageningen University & Research, SPRINT project coordinator, underscoring the far-reaching significance of these findings, said "Our research highlights that the issue of pesticide mixtures transcends the agricultural field areas; it reaches the very households of those working on farms and their neighbouring communities. The results show that not only are mixtures of pesticide residues rather common in both agricultural and residential settings, but also that they can be highly complex, and variable in these settings. We need a more nuanced understanding of the impact of chemical mixtures in the field and related exposure-response data to better understand the ecosystem and human health risks. We urgently require integrated risk assessments that mirror the real-world complexity of these widespread pesticide mixtures."

The SPRINT project's next phase will delve into assessing ecosystem and human health risks posed by the identified pesticide mixtures. Equipped with the comprehensive data, the project aims to develop a novel indicator tailored for regulatory purposes, thus providing EU decision-makers with information to support tools to tackle the mounting challenges posed by pesticide mixtures.

The ultimate goal is to ensure healthy ecosystems and a living and working environment for agricultural workers and the general population.

For further information or to request an interview with the SPRINT project lead, please contact:

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About the SPRINT Project: The SPRINT project, funded by the European Union's Horizon program, stands at the forefront of scientific inquiry into the impacts of pesticide mixtures on agriculture and human health. With a multidisciplinary approach and unprecedented data collection efforts, the project aims to develop a Global Health Risk Assessment Toolbox to assess the impacts of pesticides on environmental and human health and to propose several transition pathways to reduce the use and risk of pesticides.

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The Pesticide Properties Database (PPDB) is a comprehensive relational database of over 1800 pesticides and their metabolites. It has principally been developed to support risk assessments. Data held includes registration information, physical chemical properties, toxicological endpoints, human health data and commercial information.

