Table S2. Criteria for risk of bias assessment for cohort and cross-sectional studies.

1. Was selection of exposed and non-exposed drawn from the same population?	
Definitely yes	When the inclusion and exclusion criteria for exposed and unexposed were the same, **AND** Participants were selected from the same time frame and geographic location.
Probably yes	-
Probably not	-
Definitely not	When exposed and unexposed did not have the same inclusion and exclusion criteria, **OR** When they were from different locations, **AND** They were from different time frames.
2. Can we be confident about the exposure assessment?	
Definitely yes	Exposures were consistently assessed by biomonitoring studies, such as analysis of fluids (blood/urine) of exposed participants in different time points of the follow-up period.
Probably yes	When exposure data was obtained from employer records or farm records that continuously recorded the employee's exposure during the study period.
Probably not	Self-reported exposure in questionnaires or interviews during the follow-up period.
Definitely not	Follow-up details were not reported.
3. Can we be confident that the outcome of interest was not present at the beginning of the study?	
Definitely yes	Participants were evaluated by a neurologist who confirmed that there was no PD or any neurodegenerative disease at recruitment, according to specific criteria.
Probably yes	-
Probably not	Participants were not evaluated by a neurologist at recruitment, **AND** They were only assessed by questionnaires or interviews in the beginning of the study.
Definitely not	Participants not physically evaluated nor assessed by questionnaires or

	interviews at the beginning. Cross-sectional studies don't have a follow-up period, since the exposures and outcomes are assessed at the same time, so in this case, they would get a "definitely not".
4. Did the study match exposed and unexposed for all variables that are associated with the outcome of interest or did the statistical analysis adjust for these prognostic variables?	
Definitely yes	When the authors mentioned all the following variables: age, sex, duration of exposure, rural life, well water consumption, smoking, use of personal protective equipment (PPE), and family history of PD.
Probably yes	When the authors considered at least the variables "age", "sex", "duration of exposure", and "smoking" in the adjustments.
Probably not	When the authors considered only the variables "age", "sex", and "smoking" in the adjustments.
Definitely not	When the above variables were not considered.
5. Can we be confident about the assessment of the presence or absence of risk factors to PD?	
Definitely yes	When questionnaires were used to measure possible risk factors including at least the following: head trauma, well water consumption, rural life and family history of PD.
Probably yes	When questionnaires were used to measure possible risk factors, **AND** Only some of the previously written risk factors were measured.
Probably not	-
Definitely not	When the authors did not investigate risk factors in the studied population.
6. Can we be confident about the outcome assessment?	
Definitely yes	PD diagnosis was made by a neurologist, who examined each participant in different time points of the follow-up period, according to specific criteria, as from the UK PDS Brain Bank (Hughes et al. 1992b), **AND** Assessors were blinded to the participants' exposure status.
Probably yes	When participants were evaluated at least twice by a neurologist/trained health professional (in the beginning and in the end of the follow-up period), **AND** There was specification of at least the following criteria: (I) at least two of the four cardinal signs of PD (bradykinesia, resting tremor,

	postural instability and rigidity), (II) without early atypical features that might support differential diagnoses, (III) no evidence of other possible causes of parkinsonism that may explain the patient's symptoms (drug-induced, head trauma, or others), **OR** Diagnostic criteria were poorly described, but it points to PD. **AND** Assessors were blinded to participants' exposure status.
Probably not	When participants were evaluated by a neurologist/trained health professional at least twice, **AND** Diagnostic criteria were not mentioned, **AND** Assessors were not blinded to participants' exposure status.
Definitely not	When participants were not evaluated by a neurologist, **AND** PD diagnoses were only reported by the participants in questionnaires/interviews, **OR** When clearly only parkinsonism was investigated.
7. Can we be confident that the follow-up of cohorts was adequate?	
Definitely yes	If there was a follow-up of at least five years for participants with a mean age equal or above 60 years old, **AND** There was a loss of follow-up of no more than 10%, **AND** The difference of losses between groups of cases and controls were less than 5%.
Probably yes	-
Probably not	If there was a follow-up of at least five years for participants with a mean age equal or above 60 years old, **AND** There was a loss of follow-up of more than 10%, **AND** The difference of losses between groups of cases and controls were more than 5%.

Definitely not	The follow-up for participants with a mean age equal or above 60 years old was less than five years, **AND** There was a loss of follow-up more than 10%, **AND** The difference of losses between groups of cases and controls were more than 5%. Cross-sectional studies don't have a follow-up period, since the exposures and outcomes are assessed at the same time, so in this case, they would get a "definitely not".
8. Were co-interventions similar between groups?	
Definitely yes[a]	When co-interventions that could influence the outcome (e.g., levodopa or other dopamine agonist treatment, use of personal protective equipment, exposure to manganese, heavy metals, or other pesticides also related do PD) were similar between groups of exposed and non-exposed.
Probably yes	-
Probably not	-
Definitely not	When the above-mentioned co-interventions were not similar among groups **OR** There was no information about co-interventions.

[a] The use of neuroleptic drugs or other drugs that might induce parkinsonism was not considered because it is an exclusion criteria for PD diagnosis.