Matrices (FR and NO), in approximately 316 000 persons representing 3.6 million person-years of follow up. '

Results Results for Non-Hodgkin lymphomas (NHL) were recently published, based on 2430 cases. Most meta-HRs suggested no association. Moderately elevated meta-HRs were seen for NHL and ever use of terbufos (meta-HR=1.18, 95% CI: 1.00–1.39), based on 300 exposed cases; chronic lymphocytic leukaemia/small lymphocytic lymphoma and deltamethrin (1.48, 1.06–2.07), 148 cases; and diffuse large B-cell lymphoma and glyphosate (1.36, 1.00–1.85), 221 cases; although the latter was driven exclusively by results in the Norwegian cohort. Inverse associations of NHL with the broader groups of organochlorine insecticides (0.86, 0.74–0.99) and phenoxy herbicides (0.81, 0.67–0.98) were observed, but individual active ingredients within these groups were not associated after adjusting for exposure to other pesticides. Preliminary results based on data from the US and NO for myeloid cancers indicate moderate associations with dichlorvos and aldicarb.

Conclusion Individual studies are often underpowered regarding their ability to demonstrate associations of disease, particularly for more rare exposures or for rare cancers or subtypes. Analyses within the AGRICOH consortium provide an opportunity to overcome the low power to detect.

S-344 NEUROLOGICAL DISEASES IN FARMERS: OPPORTUNITIES WITHIN THE AGRICOH CONSORTIUM

[1]Isabelle Baldi, Anne-Helen Harding, Christine G Parks, Sue Park, Joachim Schuz, Aesun Shin, Srishti Shrestha, Pierre Lebailly. [1]*University of Bordeaux, France*

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Objectives In most countries, the burden of neurological disorders is shown to increase. One explanation is the increase in life expectancy, especially for neurodegenerative ones. Environmental factors, including chemicals such as pesticides may also explain this Public Health issue. Several epidemiological studies have shown pesticide exposure in farmers was associated with neurodegenerative diseases. The strongest evidence concerns Parkinson's disease, but there are also data for Alzheimer's disease and amyotrophic lateral sclerosis. In addition, several studies have suggested that farmers had higher depression and suicide rates than the general population, which could be explained by several factors like remote residence, long working days, time pressure, economic stressors. Pesticides are also suspected as some of them disturb neurotransmitters implicated in mood, like serotonin and dopamine.

Methods In AGRICOH, there are opportunities to further study the occurrence of neurological diseases in relation with agricultural exposures. A first step has been taken by describing mortality from neurodegenerative diseases and suicide in the 4 cohorts who collected this type of data: the Agricultural Health Study in US (N= 51,502, 1999–2015), the AGRICAN cohort in France (N=181,842, 2005–2015), the Prospective Investigation of Pesticide Applicators' Health Study in UK (N=4,944 participants, 2013–2016) and the Korean Multicenter Cancer Cohort study (N=8,428 participants; 1993–2013). Standardized mortality ratios were calculated according to gender and countries.

Results In these first analyses, no excess in neurodegenerative mortality in males and females was observed in the four cohorts. However, suicide mortality was significantly increased in French, British and Korean females (SMR=1.46; 23; 1.66, respectively) and in French males (SMR=1.13, 1.03–1.25) compared to the general population.

Conclusion Possibilities to go further on neurological diseases in AGRICOH, exploring possibilities to get incidence data, to combine data from additional cohorts, to include metrics for pesticide exposures in the analysis will be discussed during this symposium.

S-388 EXPOSURE ASSESSMENT FOR POOLING PROJECTS WITHIN THE AGRICOH CONSORTIUM

[1]Hans Kromhout. [1]*Utrecht University, Netherlands*

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Objectives Pooling epidemiological studies can be beneficial when studying rare outcomes and subtypes of diseases. However, pooling of exposure information is a challenge since standard approaches are not employed. The objective of this undertaking was to enable pooling of agricultural cohort studies at level of exposure to active ingredients.

Methods Initial efforts in AGRICOH focused on cancer outcomes in three large cohort studies, the Agricultural Health Study (AHS-USA), Agriculture and cancer (AGRICAN-France) and Cancer in the Norwegian Agricultural Population (CNAP-Norway) with data from >300000 individuals. Each study employed different methods, including Crop-Exposure Matrices (CEM), (AGRICAN and CNAP), and self-report (AHS), which were compared.

Results The CEM approach led to much higher prevalence of exposures. The CEM approach as expected generated false positive exposures. Lack of specificity is less of an issue for pesticides applied relatively frequently, but will lead to more exposure misclassification when prevalence of use is low. Given that assignment of exposure will be independent of disease status, misclassification is non-differential and will result in bias towards the null, especially when strength of association is modest, as for most agricultural exposures and health effects. Within AGRICOH our ability to detect associations are for now at best limited without further improvement of exposure assessment and assignment.

Conclusion Clear differences in farming systems, crops and animals, climate and agricultural inputs do exist and may result in large qualitative and quantitative differences in exposure when accurately assessed and assigned. Consequently, it may provide opportunities to evaluate exposure contrasts.To enable pooling in more informative ways, further thought is given within AGRICOH to collect agricultural occupational histories in more detail and to harmonize exposure assessment and assignment. Standardization of exposure assessment approaches within AGRICOH and future studies is a necessity and will make pooling easier and may result in more informative studies.

S-419 LONG TERM EFFECTS OF COVID-19 IN HEALTH WORKERS AND THE ASSESSMENT OF THE FATIGUE SYNDROME IN COMPENSATION CLAIMS

[1]Albert Nienhaus. [1]*University Clinics Hamburg Eppendorf (UKE), Germany*

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