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**Boletín de
Seguridad y
Salud en el
Trabajo del
Sector
Agrícola**



**Instituto Andaluz de Prevención
de Riesgos Laborales**
Consejería de Empleo, Empresa
y Trabajo Autónomo

**Laboratorio-Observatorio Andaluz de
Condiciones de Trabajo en el Sector Agrícola
(LASA)**

<https://www.juntadeandalucia.es/organismos/iaprl/areas/investigacion/lasa.html>

FINALIDAD DE ESTE DOCUMENTO

Este boletín, realizado desde el Laboratorio-Observatorio Andaluz de Condiciones de Trabajo en el Sector Agrícola (LASA), engloba diferentes artículos científicos sobre Seguridad y Salud en el Trabajo (SST) en el sector de la agricultura. Recoge trabajos que han sido publicados en revistas del Journal Citation Reports en el primer cuatrimestre del año 2024. Se expone el título y resumen en inglés de cada artículo junto con su información principal. Además, en todos se presenta un breve resumen en español de los aspectos más destacados. Este boletín pretende facilitar la revisión de los artículos publicados en este ámbito en el período de tiempo indicado y el acceso a las revistas correspondientes.

ÍNDICE

ANNALS OF WORK EXPOSURES AND HEALTH	7
ARTÍCULO 1: Safety climate scale for vineyards: an external validity study.....	7
APPLIED ERGONOMICS	8
ARTÍCULO 2: Field-based longitudinal evaluation of multimodal worker fatigue assessments in offshore shiftwork	8
THE AUSTRALIAN JOURNAL OF RURAL HEALTH	9
ARTÍCULO 3: Assessing the impact of socio-demographics and farming activity on ward-level mortality patterns using farm and population decennial censuses.....	9
ERGONOMICS	10
ARTÍCULO 4: Farm operations and slips, trips, and falls among corn farm workers in Thailand.....	10
JOURNAL OF AGROMEDICINE	11
ARTÍCULO 5: Non-Fatal Agricultural Injuries and First Aid Self-Efficacy Among Greenhouse Workers in Turkey	11
ARTÍCULO 6: Knowledge Shared by Alaska Native Commercial Salmon Set Gillnetters in Norton Sound to Reduce Marine Fatalities	12
ARTÍCULO 7: The Application of Neoprene Diving Boots in Reduction of Feet Injuries in the Sowing Process Among the Rice Farmers in Thailand.....	13
ARTÍCULO 8: Retention of Agricultural Workers Participating in a Renal Longitudinal Study	14
ARTÍCULO 9: Recruitment of Row Crop Farmers into a Research Study to Assess Farm Hazards.....	15
ARTÍCULO 10: Presenteeism and Low Work Performance Among Fruit Farm Workers in Northeast Brazil.....	16
ARTÍCULO 11: Navigating Farm Stress: Traumatic and Resilient Dimensions of the Black Agrarian Frame.....	17
ARTÍCULO 12: “Death by a Thousand Cuts”: Agriculture Producer Resiliency in the Western United States	18
ARTÍCULO 13: Pesticide Exposure or Pesticide Poisoning and the Risk of Depression in Agricultural Populations: A Systematic Review and Meta-Analysis.....	19
ARTÍCULO 14: Agricultural Injury Surveillance in the United States and Canada: A Systematic Literature Review	20
ARTÍCULO 15: Safety and Injury of US-Certified Organic Crop Producers in the Southwest Region.....	21

ARTÍCULO 16: Severity of Agricultural Injuries and Its Economic Consequences in Border Belt of Gurdaspur District of Punjab, India.....	22
ARTÍCULO 16: Use of Capture-Recapture Analysis to Estimate the Number of Agricultural Fatalities and Severe Agricultural Injuries in Indiana	23
ARTÍCULO 17: Using Partnerships and Multiple Data Sources to Surveil Agricultural Injuries: Considerations and Recommendations.....	24
ARTÍCULO 18: Tractor Injuries in the Upper Midwestern United States: a retrospective analysis of four trauma centers.....	25
ARTÍCULO 19: Global Patterns of Agricultural Machine and Equipment Injuries- A Systematic Literature Review	26
ARTÍCULO 20: Understanding Stakeholder Dissemination Preferences for an Agriculture, Forestry, and Fishing Injury Surveillance System	27
ARTÍCULO 21: Injuries Among Hispanic/Latinx Agricultural Workers Seen in Illinois Hospitals.....	28
ARTÍCULO 22: Using State Agency Reports to Augment Ohio’s Agricultural Injury Surveillance Efforts.....	29
ARTÍCULO 23: Data Driven Identification of Injury Risk Factors During Expansion on Irish Dairy Farms	30
ARTÍCULO 24: Exploratory Analysis of Farm Vehicle and Farm Labor Transportation-Related Crashes.....	31
ARTÍCULO 25: Counting Farm Injuries and Fatalities: An Assessment of Irish Occupational Health and Safety Surveillance Data Systems	32
ARTÍCULO 26: A Summary of Fatal Injury Surveillance Methods in Australian Agriculture and Their Impact on Safety Policies and Practices	33
RURAL AND REMOTE HEALTH	34
ARTÍCULO 27: The link between pesticide exposure and suicide in agricultural workers: a systematic review.....	34
ARTÍCULO 28: Farming and the risk of developing osteoarthritis in Alberta, Canada.....	35
SAFETY SCIENCE	36
ARTÍCULO 29: Causes and prevention of cattle-handling injuries: An interview study.....	36
ARTÍCULO 30: Sleep issues and burnout in Irish farmers: A cross sectional survey.....	37
SAFETY AND HEALTH AT WORK.....	38
ARTÍCULO 31: Comparative Study of Heavy Metal Blood Serum Level Between Organic and Conventional Farmers in Eastern Taiwan	38
AGRICULTURE	39
ARTÍCULO 32: Mapping the Research into Mental Health in the Farming Environment: A Bibliometric Review from Scopus and WoS Databases	39

ARCHIVES OF ENVIRONMENTAL & OCCUPATIONAL HEALTH.....40

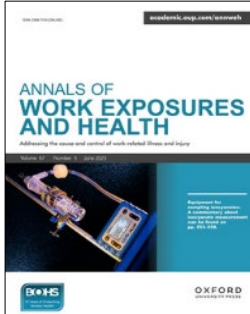
ARTÍCULO 33: Assessing occupational pesticide exposure in Latin America and the Caribbean: Methods review for agricultural vulnerability reduction40

SAFETY.....41

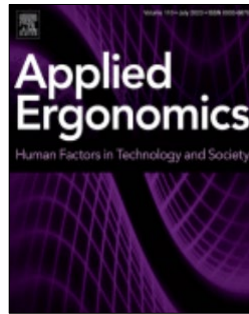
ARTÍCULO 34: Noise Exposure, Prevention, and Control in Agriculture and Forestry: A Scoping Review.....41

REVISTAS QUE CONTIENEN ARTÍCULOS EN ESTE BOLETÍN

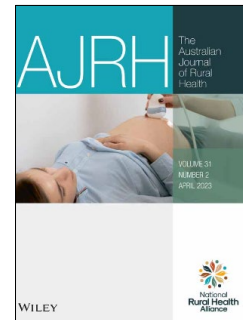
ANNALS OF WORK EXPOSURES AND HEALTH



APPLIED ERGONOMICS



THE AUSTRALIAN JOURNAL OF RURAL HEALTH



INDUSTRIAL HEALTH



JOURNAL OF AGROMEDICINE



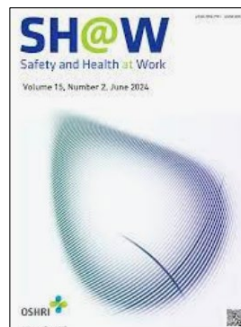
RURAL AND REMOTE HEALTH



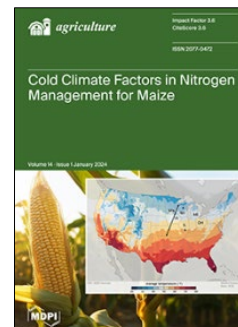
SAFETY SCIENCE



SAFETY AND HEALTH AT WORK



AGRICULTURE



ARCHIVES OF ENVIRONMENTAL & OCCUPATIONAL HEALTH



SAFETY



ANNALS OF WORK EXPOSURES AND HEALTH

ARTÍCULO 1: Safety climate scale for vineyards: an external validity study

Objectives: Agriculture entered the discussions about safety climates late, despite being one of the most hazardous industries. We recently developed a safety climate scale in Bordeaux vineyards, for which we provided good evidence of reliability and construct validity (Grimbuhler and Viel 2019). In this study, we aimed to establish the external validity of this safety climate scale with the help of an independent national sample of vineyard professionals.

Population and methods: We approached vineyard managers and operators during compulsory training and certification procedures for pesticide-related activities. Trainees giving informed consent for participation in the study were asked to complete a safety climate questionnaire at the start and end of a training session. In total, 406 vineyard managers or operators completed the questionnaire at the start of the study, 37 of whom declined to complete the questionnaire at the end of the training session, leaving 369 subjects available for pretraining/post-training comparisons. Statistical comparisons were based on t-tests and mixed models for repeated measures.

Results: A mean safety climate score of 82.91 (SD: 9.06) was obtained in the initial survey in the Bordeaux region, whereas the safety climate score was estimated at 83.78 (SD 10.39) in this nationwide survey ($P = 0.23$). A significant increase was observed after the training course, for the safety climate score (7.5%, $P < 10^{-15}$) and for each of its 7 dimensions ($P < 10^{-4}$ or less), in both univariate and multivariate analyses. However, the magnitude of these increases varied with dimension, ranging from 2.4% for rules and best practices to 15.5% for communication and feedback.

Conclusions: External validity was demonstrated by transferability and sensitivity to intervention. This safety climate scale can now be considered to provide a good inference of the safety culture, with a meaning generalizable across vineyards.

Escala climática de seguridad para viñedos: un estudio de validez externa

El objetivo de esta investigación fue validar externamente una escala de clima de seguridad que se desarrolló para viñedos en Burdeos. Se aplicó la escala a una muestra nacional de trabajadores de viñedos. En concreto, 369 profesionales realizaron cuestionarios sobre clima de seguridad antes y después de una formación relacionada con el uso de pesticidas. Se utilizaron técnicas estadísticas para la obtención de resultados. Las puntuaciones iniciales sobre clima de seguridad del estudio nacional fueron similares a las de Burdeos, siendo de 83,78 y 82,92, respectivamente. La puntuación mejoró tras la formación. Se concluyó que se trataba de una escala válida y generalizable a todos los viñedos.

AUTORES	Sonia Grimbuhler, Théo Werlen, Jean-François Viel
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TEMÁTICA	Seguridad y Salud General

APPLIED ERGONOMICS

ARTÍCULO 2: Field-based longitudinal evaluation of multimodal worker fatigue assessments in offshore shiftwork

Fatigue in offshore environments is a critical safety hazard, yet the utility of daily fatigue assessments has not been longitudinally examined in these environments. The aim of this exploratory longitudinal field study across two drillships in the Gulf of Mexico was to determine the changes in subjective, performance-based, and physiological fatigue measures over time across different shift types (day, night, and swing) and to identify correlations between these multimodal fatigue assessments. Repeated measures correlation analyses of daily fatigue data from seventy offshore workers revealed that while total sleep time remained unaffected by time on rig, workers' performances on the psychomotor vigilance test (PVT) deteriorated over time across all shift types. Several correlations between the various multimodal measures were consistent with the extant literature on worker fatigue symptoms and perceptual and physiological manifestations. These findings emphasize the utility of PVT and single item self-reports to capture worker fatigue in offshore shiftwork.

Evaluación longitudinal basada en campo de las evaluaciones multimodales de la fatiga de los trabajadores a turnos en alta mar

Se evaluó la fatiga de trabajadores de dos buques de perforación en el Golfo de México durante diferentes turnos (día, noche y rotativos). Se midió la fatiga subjetiva, basada en el rendimiento, y fisiológica, para determinar los cambios e identificar correlaciones. Se obtuvieron los datos de 70 trabajadores. El tiempo total de sueño no cambió, pero el rendimiento de los trabajadores en una prueba de atención psicomotora empeoró con el tiempo para todos los turnos. Algunas correlaciones entre medidas de fatiga coincidieron con estudios ya existentes.

AUTORES John Kang, Stephanie C. Payne, Farzan Sasangohar, Ranjana K. Mehta

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TEMÁTICA Fatiga

 THE AUSTRALIAN JOURNAL OF RURAL HEALTH

ARTÍCULO 3: Assessing the impact of socio-demographics and farming activity on ward-level mortality patterns using farm and population decennial censuses

Introduction and Objective: Farmers experience a specific set of unique dangers, which increases their risk of mortality compared with any other occupation. This study hypothesised that Northern Ireland's (NIs) agriculturally saturated Wards have a higher risk of mortality compared against non-agriculturally based Wards.

Design: The Population Census and Farm Census information were downloaded from the Northern Ireland Neighbourhood Service (NINIS) online depository to compile three mortality-based data sets (2001, 2011, pooled data sets). Assessing the impact of socio-demographics and farming activity on Ward-level mortality patterns using farm and population decennial censuses. This study analysed all 582 Ward areas of NI, which enclosed the entire populace of the country in 2001 and 2011.

Findings: Path analysis was utilised to examine direct and indirect paths linked with mortality within two census years (2001; 2011), alongside testing pathways for invariance between census years (pooled data set). Ward-level results provided evidence for exogenous variables to mortality operating through three/four endogenous variables via: (i) direct effects (age), (ii) summed indirect effects (age; males; living alone; farming profit; and deprivation) and (iii) total effects (age; males; living alone; and deprivation). Multi-group results cross-validated these cause-and-effect relationships relating to mortality.

Discussion and Conclusion: This study demonstrated that farming intensity scores, farming profits and socio-demographics' influence on mortality risk in a Ward were dependent on the specific social-environmental characteristics within that area. In line with earlier area level research, results support the aggregated interpretation that higher levels of farming activity within a Ward increase the risk of mortality within those Wards of NI. This was an essential study to enable future tailoring of new strategies and upgrading of current policies to bring about significant mortality risk change at local level.

Evaluar el impacto de las características sociodemográficas y la actividad agrícola en los patrones de mortalidad a nivel de zona utilizando censos agrícolas y de población decenales

Se estudió si en Irlanda del Norte las zonas con actividad agrícola implican mayor riesgo de mortalidad que las que no cuentan con este tipo de ocupación. Se emplearon datos del censo de población y del censo agrícola de 2001 y 2011. Se analizaron 582 zonas y se estudió la relación entre actividad agrícola, características sociodemográficas y mortalidad. Se concluyó que en las áreas con niveles altos de actividad agrícola aumenta el riesgo de mortalidad.

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TEMÁTICA Seguridad y Salud General

ERGONOMICS

ARTÍCULO 4: Farm operations and slips, trips, and falls among corn farm workers in Thailand

Slips, trips, and falls (STFs) represent a main source of injury among farm workers. The purpose of this study was to evaluate the association between farm operations and STFs among corn farm workers. We conducted a cross-sectional study using a self-administered questionnaire among corn farm workers in Nan and Saraburi provinces, Thailand from July 5 to 23, 2022. Poisson regression analysis was used. Among 338 participants, 122 (36.1%) had experienced an STF in the previous 6 months. Conducting very frequent, frequent, or occasional pest management was associated with a higher incidence rate ratio (IRR) of STFs than never or rarely pest management (adjusted IRR 1.93, 95% confidence interval [CI]=1.23 to 3.04, $p=0.004$). People with marginal or unsatisfactory work break lengths had a higher incidence rate of STFs than those with satisfactory work breaks (adjusted IRR 1.40, 95% CI=1.03 to 1.89, $p=0.030$). We found that corn farm workers in our study often experienced STFs, which was associated with a high frequency of pest management practices and inadequate work breaks. Reducing the physical burden of pest management may be effective as an STF prevention strategy.

Operaciones agrícolas y resbalones, tropiezos y caídas entre trabajadores de campos de maíz en Tailandia

Este estudio analizó la relación entre las labores agrícolas y los resbalones, tropiezos y caídas (causas frecuentes de lesiones) en trabajadores de campos de maíz. Se realizó un cuestionario a 338 trabajadores de las provincias de Nan y Saraburi (Tailandia). Al analizar los resultados, se demostró que 122 trabajadores se habían resbalado, tropezado o caído en los 6 meses previos. Un mal descanso laboral y el manejo de plagas de forma frecuente aumentaban este riesgo.

AUTORES	Chayaphorn Vudhironarit, Sara Arphorn, Chatchai Thanachoksawang, Chalerm Siri Theppitak, Kanpitcha Kiatkitroj, Teepapipat Lertvarayut, Jiraporn Phuaram, Kunio Hara, Tomohiro Ishimaru
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TEMÁTICA	Accidentes y Enfermedades Laborales

JOURNAL OF AGROMEDICINE

ARTÍCULO 5: Non-Fatal Agricultural Injuries and First Aid Self-Efficacy Among Greenhouse Workers in Turkey

Objective: This study aimed to see if there was a link between first aid self-efficacy and the frequency of occupational accidents and non-fatal agricultural injuries in greenhouse agriculture workers.

Methods: This cross-sectional study was conducted with 251 people in a district center. Sociodemographic, occupational accident, and injury questionnaires prepared by the researchers and the First Aid Self-Efficacy Scale were used to collect the data. SPSS 25.0 software was used to evaluate the data and descriptive statistics; the Mann-Whitney U test and Kruskal Wallis analysis of variance were applied in the analysis.

Results: 71.4% of the participants experienced an occupational accident by falling and slipping; 41.7% were slightly injured after the accident, and 63.2% experienced injuries in fractures, sprains, and crushes. We found that most injuries were in the lower extremities (33.2%), and 66.4% were admitted to the hospital. We ascertained that male workers' median first-aid self-efficacy scores were significantly higher than those of female workers ($p < .05$). We determined there was no significant difference between first-aid self-efficacy scores according to other sociodemographic variables, occupational accidents, or injury data ($p > .05$).

Conclusion: Occupational accidents and non-fatal agricultural injuries are common in greenhouse agriculture, and male workers have higher first-aid self-efficacy than female workers. Since greenhouse work is a hazardous line of work, providing simple medical first-aid training would be useful for those working in this field.

Lesiones agrícolas no mortales y autoeficacia en primeros auxilios entre trabajadores de invernaderos en Turquía

Se estudió la relación entre la autoeficacia en primeros auxilios de agricultores de invernaderos de Turquía y la frecuencia de ocurrencia de accidentes y lesiones en el trabajo. Se utilizó una escala sobre autoeficacia en primeros auxilios y se realizaron cuestionarios sobre accidentes y lesiones a 251 participantes. Se concluyó que en los invernaderos eran frecuentes los accidentes y lesiones (no mortales) y que los trabajadores hombres sabían más sobre primeros auxilios. Se indicó la necesidad de que los profesionales recibieran formación en este ámbito.

AUTORES

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TEMÁTICA

Accidentes y Enfermedades Laborales

ARTÍCULO 6: Knowledge Shared by Alaska Native Commercial Salmon Set Gillnetters in Norton Sound to Reduce Marine Fatalities

Objectives: The goal of this exploratory pilot study was to reduce marine fatalities in Norton Sound using knowledge shared from Alaska Native salmon set gillnetters in Unalakleet, AK. The following objectives to address this goal were: 1) identify factors that influence safety for Alaska Native commercial set gillnetters in Norton Sound; 2) use findings from objective 1 to improve commercial fishing training, education, and resources; and 3) disseminate and communicate results from objective 1 to commercial fishers in the Norton Sound fleet, commercial fishing safety partners, and the Alaska Native injury prevention community.

Methods: Ten semi-structured interviews were conducted with Alaska Native commercial set gillnetters in Unalakleet, AK. We utilized knowledge shared to identify factors that influence safety for their fleet. Using an Interpretative Phenomenological Analysis Methodology, 10 interviews were recommended for a homogenous sample.

Results: Most participants learned to fish at a young age from the family, with safety lessons passed on by family members. Fishing is a lifestyle and interconnected with harvesting and a way of living. Set gillnetters in Norton Sound use open skiffs and have limited access to workable Personal Flotation Devices (PFDs) and safety training. Participants reported health benefits but also negative long term physical effects, financial stress, and difficulty fishing with age. Respect and awareness of the ocean was reported as the most important strategy to reduce risk. Stories were shared of falls overboard, capsizing, and local fatalities and hazards, such as being overloaded with fish, entanglement, and maneuvering a small boat in large waves. Stronger winds and shifting weather patterns were experienced from climate change.

Conclusion: This exploratory pilot study identified factors that influence safety for Alaska Native commercial set gillnetters. Findings should be used to 1) determine best methods to influence behaviors to reduce risks in this hazardous fishery; 2) increase awareness and promote expanded application of best practices, equipment, and resources; 3) encourage and promote outreach initiatives targeted for this unique population; and 4) develop tailored training programs for commercial fishing in an open skiff. Research with Alaska Native fishing communities will require value and respect of indigenous knowledge, collaboration with local people, and follow-up to bring findings back to the community.

Conocimientos compartidos por pescadores de salmón de Alaska con redes de enmalle en Norton Sound para reducir las muertes en el mar

Este estudio tuvo como objetivo identificar los riesgos en los trabajadores que pescaban salmón con redes de enmalle en Norton Sound. Se entrevistó a diez pescadores, que indicaron su acceso limitado a formación y a dispositivos que podrían mejorar su seguridad. Además, expusieron que los conocimientos que tenían sobre este tema se los habían transmitido sus familias, que trabajaban en el mismo sector. Indicaron peligros como vuelcos, enredos, maniobras durante oleaje, vientos fuertes, etc. Se debía mejorar la formación, obtener recursos necesarios para disminuir dichos riesgos y divulgar esta información.

AUTORES

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TEMÁTICA

Accidentes y Enfermedades Laborales

ARTÍCULO 7: The Application of Neoprene Diving Boots in Reduction of Feet Injuries in the Sowing Process Among the Rice Farmers in Thailand

Foot injuries have been a problem among Thai farmers for a long time. The sowing process is one of the high-risk processes because farmers have to walk in the field to spray rice seed without footwear. Literature review showed that cuts from stepping on sharp material or snail shells were major sources of injury. Traditional footwear such as Ninja shoes or cloth socks have raised the questions regarding their ability in protection from such injuries. This study investigates using Neoprene diving boots to protect from foot injuries during the rice sowing process. The sample from this study were farmers from Sena District, Phra Nakhon Si Ayutthaya Province, Thailand. 29 farmer wearing Neoprene diving boots, 7 farmers wearing traditional Ninja shoes, and 19 farmers wearing cloth socks were asked to work in the sowing process and interviewed about any foot injuries that may have occurred. The statistical test showed there were no significant differences in characteristics among each group of farmers, except for work experience. The results show that there were no foot injuries in farmers wearing Neoprene diving boots, whereas 73% of farmers wearing Ninja shoes, and 14% of farmers wearing cloth socks still had foot injuries. Most injuries were alaceration that were caused by the golden apple snail. The satisfaction survey showed that farmers were satisfied and strongly satisfied with all of the aesthetics, utilization, and functionality factors. This study suggested that the Neoprene diving boots can be recommended for farmers to use as safeguarding against foot injuries in the rice sowing process.

La aplicación de botas de buceo de neopreno para la reducción de lesiones en los pies durante el proceso de siembra entre los agricultores de arroz en Tailandia

La siembra de arroz en Tailandia se realiza sin calzado, lo que provoca lesiones en los pies de los agricultores. Existen alternativas como calcetines o zapatos Ninja, que presentan dudas sobre su protección contra los cortes. Por este motivo, se propuso el uso de botas de neopreno específicas para buceo en la realización de dicha labor. Durante el estudio, 29 participantes usaron estas botas en el proceso de siembra, 19 emplearon calcetines de tela y 7 zapatos Ninja. Posteriormente, se hicieron entrevistas sobre las lesiones que habían sufrido en los pies. Los resultados mostraron que los que emplearon botas no tuvieron ninguna lesión, al contrario que en los otros casos, con un 73% de agricultores con lesiones para zapatos Ninja y un 14% para calcetines de tela. Además, se realizó una encuesta de satisfacción que indicó que los agricultores tenían una opinión positiva sobre el uso, funcionalidad y estética de este calzado.

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TEMÁTICA Accidentes y Enfermedades Laborales

ARTÍCULO 8: Retention of Agricultural Workers Participating in a Renal Longitudinal Study

Objectives: The relationship between heat stress, chronic kidney diseases and acute kidney injury has been documented in cross-sectional studies with agricultural workers. However, only a few international studies have assessed renal function in agricultural workers longitudinally. Our research study, Occupational Heat Exposure and Renal Dysfunction (OHEaRD) is the first longitudinal study in the U.S. that monitored renal function in agricultural workers five times over the course of 32-months. The main objectives of this study were to evaluate the rate of retention and identify predictors associated with retention in a longitudinal study with agricultural workers.

Methods: In January 2020, we enrolled 119 Florida agricultural workers to observe on 5 workdays over 32 months. Retention was defined by the number of follow-up visits that a participant attended, the consistency of visit attendance, and attendance at the last visit. Participants were provided hemoglobin A1C, lipid panel, creatinine measurement, glomerular filtration rate (eGFR), blood pressure, and body mass index results and an incentive gift card were handed out to participants at each visit.

Results: Four enrollees did not participate on any workday, thus analysis concentrated on the remaining 115 participants. The majority of participants (64%) completed the 32-month study, 78% completed at least 4 visits, and 55% completed all 5 visits. The statistically significant predictors of higher retention among this study were being older in age ($p=0.02$), Mexican nationality ($p=0.004$), working in ferneries ($p=0.009$), more years working in agriculture ($p=0.02$), and higher total cholesterol ($p=0.02$). Appreciation for the health tests was associated with greater participation at the final visit ($p=0.01$).

Conclusion: Retention in longitudinal studies is crucial to better understand kidney disease among agricultural workers, an understudied population. Participants reported valuing the access to health results, indicating that implementing point-of-care health screenings and providing the health results to each participant is a good retention strategy. There was some evidence that a participant living with or being related to a fellow co-participant could impact retention as they either showed up or missed visits together, suggesting recruiting from the same household may reduce retention.

Retención de trabajadores agrícolas participantes en un estudio longitudinal renal

Se realizó un estudio longitudinal para monitorear la función renal de agricultores de Estados Unidos, con el fin de comprobar la asistencia de estos trabajadores a dicho tipo de estudio. Se seleccionó a 119 profesionales para observarlos durante cinco días laborales en un período de 32 meses, pero finalmente solo participaron 115. Un 64% de los participantes colaboraron los 32 meses, el 78% realizó al menos cuatro visitas y el 55% asistió los cinco días. Un mayor tiempo de trabajo en el sector de la agricultura, valores de colesterol más elevados y otros fueron motivos por los que los trabajadores asistían al estudio. Los participantes expresaron que realizar estos estudios sobre su salud y recibir sus resultados era una buena estrategia para su participación.

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TEMÁTICA Atención Sanitaria

ARTÍCULO 9: Recruitment of Row Crop Farmers into a Research Study to Assess Farm Hazards

Farmers are at an elevated risk for injuries and are, therefore, highly sought after for research studies. However, their participation in research studies is low. We examine how characteristics of the farmer, farm location, and timing of recruitment contact impact the probability that farmers will engage and participate in a study of injuries and related farm hazards. Study data were obtained from the Farm Safety Study conducted at the University of Iowa between June 2019 and March 2020. We used recruitment data from participants enrolled using Farm Journal magazine subscription lists. Multinomial logistic regression was used for predictive modeling. Predictor variables included the time of day and the farm season in which phone contact for study recruitment was attempted, as well as the rurality of the farm. Two models were created to characterize screening and participation of farmers in the study. Farm season and time of day of the last recruitment call increased the likelihood of farmers being screened for study participation and completing the study. Specifically, contacting farmers during the growing season and during the daytime, regardless of farm rurality, resulted in higher probabilities of participation. Studies of agricultural injury may be more efficiently conducted, with higher participation responses, when circumstances of the recruitment call are considered. This work serves as a starting place for much-needed methodological research to identify factors that increase participation of farmers and farm workers in research studies.

Reclutamiento de agricultores de cultivos en hilera en un estudio de investigación para evaluar los riesgos agrícolas

Se estudiaron los factores que podían aumentar la participación de agricultores en estudios sobre evaluación de riesgos laborales. Los datos se obtuvieron de un estudio sobre seguridad agrícola llevado a cabo en la universidad de Iowa en 2019-2020. La hora del día en la que se realizaba la llamada para la participación y la temporada agrícola eran dos de los factores influyentes. La participación aumentaba concretamente cuando se llamaba de día y durante la fase de crecimiento del cultivo. Por tanto, ajustar el momento de contactar con los trabajadores, según estos resultados, podría mejorar la participación en este tipo de investigaciones.

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TEMÁTICA Seguridad y Salud General

ARTÍCULO 10: Presenteeism and Low Work Performance Among Fruit Farm Workers in Northeast Brazil

Objectives: The “decision” to go to work, or remain absent, when unwell undermines worker energy. It is therefore understandable that low work performance is one of the main consequences of the act of presenteeism. This study evaluated the association between presenteeism, and absolute and relative work performance among fruit farm workers in Northeast Brazil.

Methods: A cross-sectional study investigated 340 paid employees of both sexes, aged 18 years or over, who worked during the 2019 irrigated fruit harvest in the municipality of Petrolina, Northeast Brazil. Absolute and relative work performance were measured using the Health and Work Performance Questionnaire. Workers who answered “one or more days” to the question “How many days have you worked this season when you were injured or unwell?” were considered presenteeists. Poisson regression with robust variance models was used to estimate the prevalence ratios of the main associations, adjusted for potential confounders.

Results: Presenteeist workers presented lower absolute and relative work performance than non-presenteeist workers according to the strata for most of the investigated factors. The associations between presenteeism, and absolute (adjusted prevalence ratio=1.31) and relative work performance (adjusted prevalence ratio=1.45) remained strong, even after multiple adjustments for other relevant variables.

Conclusion: Presenteeist fruit culture workers self-assessed their work performance as lower than non-presenteeist ones.

Presentismo y bajo desempeño laboral entre trabajadores de fruticultura del nordeste de Brasil

Se analizó la relación entre el presentismo y el rendimiento laboral de trabajadores del nordeste de Brasil, dedicados a plantaciones de fruta. Participaron 340 agricultores durante la cosecha de 2019 y se empleó un cuestionario para analizar el rendimiento laboral relativo y absoluto. Como resultado principal se obtuvo que los trabajadores presentistas tenían un menor rendimiento laboral que el resto.

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TEMÁTICA	Seguridad y Salud General

ARTÍCULO 11: Navigating Farm Stress: Traumatic and Resilient Dimensions of the Black Agrarian Frame

The current period of economic and social instability in the farm economy has generated renewed interest in the framing processes used by farmers to interpret and ascribe blame for the distress they have experienced. Studies show that agrarian frames are differentiated into types based on farmers' historical and contemporary racialized experiences. To investigate the role that agrarian frames play in navigating farm stress, we conducted a thematic analysis using data from interviews with 15 Black farmers from three Southern states. The results identify a Black Agrarian frame with two dimensions: traumatic and resilient. The traumatic dimension provides a system-blame narrative that highlights financial risk driven by institutions and racism as a core factor in farm stress. The resilient dimension describes collective action as a key coping strategy linked to understanding the farm as a multi-faceted asset. In conclusion, research on differentiated agrarian frames is an important component towards understanding how diverse populations navigate farm stress and the development of culturally appropriate resources for addressing it.

Navegando por el estrés agrícola: dimensiones traumáticas y resilientes en agricultores de color

Este estudio se centra en investigar cómo los marcos agrarios afectan a la gestión del estrés de los trabajadores agrícolas. En concreto, este estudio se realizó a 15 agricultores negros de tres estados diferentes. Los resultados identificaron dos dimensiones en el marco: traumática (en esta se indicó que la culpa era del racismo y de las instituciones por el riesgo financiero) y resiliente (indicando la acción colectiva como estrategia para afrontar desafíos). Este estudio puede ayudar a desarrollar recursos culturales para evitar el estrés agrícola.

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TEMÁTICA	Estrés Laboral

ARTÍCULO 12: “Death by a Thousand Cuts”: Agriculture Producer Resiliency in the Western United States

Objective: Agricultural producers face a wide array of stress triggers, shocks, and long-term pressures such as drought, flooding, fire, government policies, financial insecurity, and physical injuries. Extant research has revealed that mental health stigma, lack of access to care in rural areas, and negative coping responses (alcohol abuse, suicide, prescription drugs use) exacerbate the challenge of producer responses to short and long-term adversity. Resilience, the traits, processes, and capacities of producers to adapt and transform their approach to farming or ranching, when necessary, in response to stress triggers or long-term pressures, has received less research attention, particularly in the Western United States. The purpose of the study was to apply an interactionist occupational resilience theoretical perspective to the investigation of contextual factors contributing to resilience in Western United States agricultural producers.

Methods: Qualitative interviews (45 to 90 minutes) were conducted with agricultural producers (n=51) from Western states and territories. Applied thematic analysis with a phenomenological lens was utilized to analyze interview transcriptions. First and second level coding were conducted to derive themes.

Results: The analysis revealed that resilience is based upon the interactions between traits of producers and the context of agriculture. Four themes were generated (Agricultural Life, External Stressors, Traits and Adaptations, and Supports and Resources), supported by subthemes. The themes and subthemes are depicted in an agricultural producer resiliency model. The findings shed light on the equivocal role of neighbors in providing support for each other and the double-edged sword of co-working with family.

Conclusions: The findings underscore that social capital is an important mechanism for supporting farmers and ranchers, as those with stronger social resources are more resilient. We recommend more funding to tailor stress and mental health programming to the specifics of agriculture, integration of behavioral health in primary care as a mechanism to increase access to care, and more intentional technical assistance for farmers and ranchers on strategic planning and problem solving.

“Muerte por mil cortes”: la resiliencia de los productores agrícolas en el oeste de Estados Unidos

Los agricultores se exponen a factores de estrés como lesiones, inundaciones, sequías, etc. Se estudió la resiliencia de estos trabajadores del oeste de Estados Unidos. Se realizaron 50 entrevistas con una duración de 45 a 90 minutos. Se obtuvieron cuatro temas principales: la vida agrícola, factores de estrés externos, rasgos, adaptaciones, apoyos y recursos. Los resultados mostraron que la resiliencia se basaba en la interacción entre las características de los agricultores y el contexto de la agricultura. Se concluyó la importancia del capital social como apoyo para estos trabajadores y se recomendó una mayor financiación destinada a la salud mental y a la integración con la atención primaria.

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TEMÁTICA Estrés Laboral

ARTÍCULO 13: Pesticide Exposure or Pesticide Poisoning and the Risk of Depression in Agricultural Populations: A Systematic Review and Meta-Analysis

Evidence suggests that farm workers represent a high-risk population for the development of depression. The aim of the study was to clarify the association between pesticide exposure/poisoning and depression. The Preferred Reporting Items for Systematic Reviews and Meta-Analysis were conducted in this systematic review and meta-analysis. Relevant studies were included through searching in PubMed, Scopus, Web of Science, ProQuest, CINAHL and pre-print services databases. A total of eight studies were included. A positive but non-significant association was observed between pesticide use and depression (OR=1.123; 95% CI, 0.932–1.354, p-value= .221) while a significant positive association was observed between pesticide poisoning and depression (OR=2.942; 95% CI, 1.791–4.831, p-value < .001). The present meta-analysis suggested clearly a significant positive association between pesticide poisoning and depression, confirming the hypothesis that pesticide poisoning is a risk factor of depression. It also revealed positive, yet non-significant association, between pesticide exposure and depression, a finding that enhances recent research but requires to be further supported by future cohort studies, including socioeconomic factors and biomarkers of depression.

Exposición a pesticidas o envenenamiento por pesticidas y riesgo de depresión en poblaciones agrícolas: una revisión sistemática y un metanálisis

Se investigó la relación entre la depresión y la exposición e intoxicación por pesticidas en agricultores. Se hizo una revisión bibliográfica en diferentes bases de datos y se seleccionaron ocho estudios. Se obtuvo una asociación positiva, pero no significativa, entre la depresión y el empleo de pesticidas. Por el contrario, sí hubo una asociación positiva significativa ente la depresión y la intoxicación con estos productos. Por tanto, la intoxicación se considera un factor de depresión en estos trabajadores.

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TEMÁTICA	Pesticidas

ARTÍCULO 14: Agricultural Injury Surveillance in the United States and Canada: A Systematic Literature Review

Introduction: Agricultural injuries remain a major concern in North America, with a fatal injury rate of 19.5 deaths per 100,000 workers in the United States. Numerous research efforts have sought to compile and analyze records of agricultural-related injuries and fatalities at a national level, utilizing resources, ranging from newspaper clippings and hospital records to Emergency Medical System (EMS) data, death certifications, surveys, and other multiple sources. Despite these extensive efforts, a comprehensive understanding of injury trends over extended time periods and across diverse types of data sources remains elusive, primarily due to the duration of data collection and the focus on specific subsets.

Methods: This systematic review, following Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, consolidates and analyzes agricultural injury surveillance data from 48 eligible papers published between 1985 and 2022 to offer a holistic understanding of trends and challenges.

Results: These papers, reporting an average of 25,000 injuries each, were analyzed by database source type, injury severity, nature of injury, body part, source of injury, event/exposure, and age. One key finding is that the top source of injury or event/exposure depends on the chosen surveillance system and injury severity, underscoring the need of diverse data sources for a nuanced understanding of agricultural injuries.

Conclusion: This study provides policymakers, researchers, and practitioners with crucial insights to bolster the development and analysis of surveillance systems in agricultural safety. The overarching aim is to address the pressing issue of agricultural injuries, contributing to a safer work environment and ultimately enhancing the overall well-being of individuals engaged in agriculture.

Vigilancia de las lesiones agrícolas en Estados Unidos y Canadá: una revisión sistemática de la literatura

En este estudio se revisaron 48 artículos publicados entre 1985 y 2022 sobre vigilancia de lesiones en la agricultura. Los artículos se analizaron según la base de datos, gravedad de la lesión, naturaleza de la lesión, zona del cuerpo, causa de la lesión, exposición y edad. Cada artículo mostró una media de 25000 lesiones. La información obtenida en este estudio se consideró relevante para mejorar los sistemas de vigilancia en el ámbito de la seguridad en la agricultura.

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TEMÁTICA	Accidentes y Enfermedades Laborales

ARTÍCULO 15: Safety and Injury of US-Certified Organic Crop Producers in the Southwest Region

Objectives: Literature on occupational risks among organic farmers is scarce. This study explored safety practices and non-fatal injuries among organic producers, and the role of sociodemographic, work, and farm characteristics on safety and injury.

Methods: Cross sectional survey of certified organic crop producers in the Southwest (SW) region of the United States (US). The Organic Integrity Database was used for recruitment. Data were collected through an electronic and paper survey.

Results: Analyses were conducted on 115 cases; response rate was estimated at 25%. A high majority of respondents owned their operation and were younger than 65 years, male, educated beyond high-school, and non-Hispanic whites. Less than half had more than 10 years of experience in organic farming; one-third worked off the farm year-round. Safety practices were very basic despite the widespread use of equipment and machinery, and limited to wearing normal clothing and apparel such hats and glasses. About half of respondents (52.6%) reported non-fatal injuries in the past year; and one-third (32.7%) time lost due to injuries. The overall cumulative incidence rate was estimated at 5.3 injuries per 10 workers within the last year. The injury rate decreased with hours worked. Significant differences were found on gender and education level and safety practices, with female respondents and the more educated being more proactive in practicing safety. Those working less than 40 h/week, in farms smaller than 50 acres, using light machinery or compact utility tractors, and tractors without roll-over protection reported significantly higher injury frequency compared to their counterparts.

Conclusion: This study contributes unique data on an essential workforce not captured by current occupational injury and illness surveillance systems. It identifies important personal and contextual factors that may contribute to safety and injury in this population. The findings indicate the need to promote safety and prevent injuries that result in work time lost. This study may also inform future occupational safety and health research and practice, including surveillance, injury prevention programs that target certain workers and production practices, and policies that support and protect the organic farmer.

Seguridad y lesiones de los productores de cultivos orgánicos certificados por los EE. UU. en la región suroeste

Se investigaron las prácticas de seguridad y las lesiones en agricultores de cultivos orgánicos certificados del suroeste de Estados Unidos. Para ello, se realizó una encuesta a 115 trabajadores. Los resultados mostraron que las prácticas de seguridad eran muy sencillas, a pesar de que estos trabajadores empleaban maquinaria y equipos. Se demostró que las mujeres y las personas con nivel educativo mayor realizaban mejores prácticas de seguridad. Respecto a la tasa de lesiones, en el último año fue de 5,3 lesiones por cada 10 trabajadores. Se concluye la necesidad de mejorar la seguridad y promover la prevención de lesiones.

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TEMÁTICA Accidentes y Enfermedades Laborales

ARTÍCULO 16: Severity of Agricultural Injuries and Its Economic Consequences in Border Belt of Gurdaspur District of Punjab, India

Objectives: This study collected data related to agricultural injuries, analyzed their causes, and suggested possible remedial actions. Few studies from developing countries have investigated this important topic. Such investigations are extremely important and are required to frame national policies.

Methods: A well-designed structured form was developed to collect and evaluate data on agricultural incidents, their causes, the severity of injuries, and possible prevention methods. The authors followed a door-to-door survey methodology to collect data with the help of local village leaders.

Results: Less educated and older adults in the age group 31 to 45 years were more prone to agricultural incidents ($p < .05$). The mean age of the victims was 35.02 years (95% CI 32.7 to 37.3); 124 (91.18%) of the victims were men; and 21 (15.4%) of the cases were fatal. Tractor rollovers caused most of the deaths. Chaff cutters were responsible for most of the incidents that required amputation. Eighteen (45%) of the chaff-cutter incidents occurred in the evening between 3:00 PM and 6:00 PM, and 12 (30%) of these incidents occurred due to fatigue.

Conclusions: The authors strongly recommend that rollover protective structures (ROPS) for tractors and seat belts should be made mandatory in India. Public guidelines emphasizing mandatory higher education for farmers and a model curriculum for both schools and colleges that focuses on the safety of rural populations should be developed. Special training should be provided on the safe operation of machinery and a definitive work – rest schedule should be followed to prevent fatigue and protect agricultural workers from incidents.

Gravedad de las lesiones agrícolas y sus consecuencias económicas en la franja fronteriza del distrito de Gurdaspur, Punjab (India)

Se analizaron las lesiones en la agricultura, sus causas y las medidas preventivas. Se realizó un formulario para obtener información sobre los incidentes, sus causas, su gravedad y métodos de prevención. Algunos resultados fueron que los trabajadores más expuestos a sufrir un incidente en la agricultura eran los de menor nivel educativo y los de mayor edad (31 a 45 años). Un 15,4% de los casos acabaron en muerte, siendo el principal factor el vuelco de tractores. Algunos accidentes se daban por el uso de cortadoras de paja, siendo una de las causas la fatiga del trabajador. Se concluyó la necesidad de emplear estructuras de protección contra vuelcos y cinturones de seguridad en tractores. También la necesidad de formación de los agricultores en seguridad. Por último, la importancia de un horario de trabajo y descanso que disminuyera la fatiga.

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TEMÁTICA

Accidentes y Enfermedades Laborales

ARTÍCULO 16: Use of Capture-Recapture Analysis to Estimate the Number of Agricultural Fatalities and Severe Agricultural Injuries in Indiana

Conducting surveillance of agricultural injuries and fatalities in the United States has been an ongoing challenge, with many cases falling outside the criteria of national and local surveillance systems. In this research, capture-recapture analysis was used to estimate the number of fatal agricultural injuries in Indiana between 2016 and 2020. A limited analysis of non-fatal injuries is also provided. This analysis was possible because of two publicly available datasets containing incident descriptions with sufficient detail for case matching. The first dataset consisted of summary lists of fatal and nonfatal agricultural injuries in Indiana published in annual agricultural fatality reports produced by the Purdue Extension. The second data source was AgInjuryNews, which gathers reports of agricultural injuries and fatalities published in news media and other publicly available sources. Results of the capture-recapture analysis estimate that, every year in Indiana, the Purdue Extension misses 18% of fatal incidents and AgInjuryNews misses approximately 60%. AgInjuryNews identifies approximately 3 fatal incidents per year that are missed by Purdue Extension. Analysis of nonfatal incidents was limited by the fact that both data sources only included nonfatal injuries that were extremely severe and/or connected to a fatality. The Purdue Extension is estimated to miss 22% and AgInjuryNews is estimated to miss 25% of nonfatal agricultural injuries meeting that narrow definition. While capture-recapture analysis only provides estimates of true injury rates, the results provide evidence that Purdue Extension's surveillance captures most agricultural fatalities in the state. AgInjuryNews has been able to identify cases missed by Purdue, and this research takes an important step forward in quantifying how media reports found in this data source differ from extension surveillance. This research also highlights the continuing limitations in the surveillance non-fatal injuries and the ways in which publicly available data can aid researchers in filling gaps in surveillance.

Uso del análisis de captura- recaptura para estimar el número de muertes y lesiones graves en la agricultura en Indiana

Se investigó el número de muertes y lesiones graves en la agricultura entre 2016 y 2020 en Indiana, mediante un análisis de captura y recaptura. Para obtener los datos se consultaron dos fuentes con informes disponibles públicamente: Purdue Extension y AgInjuryNews. Los resultados mostraron que cada año la primera fuente obviaba el 18% de las muertes y la segunda el 60%, aunque esta última detectaba muertes que Purdue Extension no identificó. Respecto a las lesiones, Extension de Purdue omitía el 22% y AgInjuryNews el 25%. Se concluyó la existencia de limitaciones en la vigilancia de las lesiones y que los datos públicos podían ser de ayuda para mejorar este ámbito.

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TEMÁTICA

Accidentes y Enfermedades Laborales

ARTÍCULO 17: Using Partnerships and Multiple Data Sources to Surveil Agricultural Injuries: Considerations and Recommendations

This article describes an interprofessional collaboration between Sanford Health and North Dakota State University that strengthens agricultural injury surveillance in the upper Midwest by using multiple sources of health data and geographic information systems (GIS) technology. We provide methodological insights and considerations for using and combining facility-level trauma registry (FLTR) data, national data sets, and GIS to identify areas with disproportionate agricultural injury prevalence. Additionally, we discuss the benefits of FLTR data, how and why it is collected, the data it contains, and how it can be combined with national datasets to fill-in surveillance gaps. Lastly, we offer recommendations for building cross-institutional and interprofessional partnerships.

Uso de asociaciones y fuentes de datos múltiples para vigilar las lesiones agrícolas: consideraciones y recomendaciones

Este estudio expone una colaboración interprofesional entre Sanford Health y la Universidad Estatal de Dakota del Norte. El objetivo principal es mejorar la vigilancia de lesiones en la agricultura en el Medio Oeste superior. Para ello, se emplean diversos datos de salud y tecnología SIG (Sistemas de Información Geográfica), con el fin de identificar áreas con un elevado número de lesiones.

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TEMÁTICA Accidentes y Enfermedades Laborales

ARTÍCULO 18: Tractor Injuries in the Upper Midwestern United States: a retrospective analysis of four trauma centers

Objectives: The purpose of the present study was to characterize the incidence, injury characteristics, and outcomes of patients presented to four trauma facilities located in the upper Midwest with tractor-related agricultural injuries.

Methods: We performed a retrospective review of the facility level trauma registries of four trauma centers located in North Dakota, South Dakota, and Minnesota between January 1, 2010 and December 31, 2021. We characterized the incidence, severity and outcomes of traumatic tractor-related agricultural injuries for pediatric and adult patients. We described the nature of these injuries by severity, anatomical site, type, age, sex, and length of stay (LoS). Injury severity was evaluated using Injury Severity Score (ISS) and Abbreviated Injury Scale (AIS).

Results: Findings indicated that farmers aged 65 and older experience polytraumatic, severe tractor-related agricultural injuries and fatalities. Of the 177 tractor patients analyzed, 40 patients were between the ages of 65 and 74 years and 45 patients were 75 and over. Male farmers aged 65 and older are injured year-round, many are discharged to skilled nursing facilities for additional care, are spending more time in the hospital, and have the highest rate of critical injuries out of all age groups. Moreover, the patients who died as a result of tractor-related agricultural injuries were men over 65 years. The most common tractor-related agricultural injuries include falls from tractors (n=53), struck by object falling/propelled from tractor (n=25), rollovers (n=26), and runovers (n=24). Falls from tractors accounted for 33% of all tractor-related upper extremity fractures, 36% of head injuries and 29% of chest injuries.

Conclusion: The findings from this study indicate that tractor-related agricultural injuries represent a significant problem in the upper Midwest. Older, male farm workers experience a higher incidence of tractor-related agricultural injuries, and all tractor-related fatalities occurred in individuals 65 years of age and older. These results underscore the need for further investigation into aging-related farm safety issues.

Lesiones por tractores en el Medio Oeste Superior de Estados Unidos: un análisis retrospectivo de cuatro centros de traumatología

El objetivo de este trabajo fue analizar la incidencia, características de lesiones agrícolas provocadas por tractores y resultados de trabajadores que asistieron a cuatro centros de traumatología en el Medio Oeste Superior. Se revisaron y analizaron los datos de traumatología de cada uno de los centros entre 2010 y 2021. Los resultados mostraron que los trabajadores de 65 años o mayores y de sexo masculino sufrían más lesiones por tractor. Las muertes se produjeron en hombres de más de 65 años. Las lesiones más comunes provocadas por este tipo de vehículos fueron caídas, golpes, vuelcos y atropellos. Las caídas provocaron un 33% de fracturas en extremidades superiores, un 36% en la cabeza y un 29% en el pecho.

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TEMÁTICA	Accidentes y Enfermedades Laborales

ARTÍCULO 19: Global Patterns of Agricultural Machine and Equipment Injuries- A Systematic Literature Review

Objectives: Agriculture is the one of the hazardous industries in the world. Though there is significant investment in agricultural safety, machine injuries continue to be the leading cause of agriculture injuries worldwide. The objective of this study was to provide a comprehensive literature review on global patterns in agricultural machine injuries and establish a framework for future research aimed at addressing safety concerns in the agriculture sector.

Methods: The existing scholarship on farm machine injuries can be categorized into three main areas: a) farming machine/equipment injuries, b) factors associated with these injuries, and c) injury patterns.

Results: Overall, the findings highlight that farm tractors are the primary source of injuries for both fatal and non-fatal incidents regardless of region. Other common sources of injuries were harvesting machinery and hand/power tools in Asia, ATVs in North America and woodworking machinery in Europe. Inadequate training in operating farm equipment was reported as the most likely factor contributing to machine-related injuries. Lastly, the patterns of injuries vary based on the interaction between humans and machinery. For instance, rollovers often result in severe head and fracture injuries, while thresher incidents can lead to amputation of hands, arms, and other body parts.

Conclusion: Addressing these injuries by implementing safety protocols will not only enhance the well-being of farm workers but potentially attract more workers to the sector, which is currently experiencing labor shortages due to machine-related injuries.

Patrones globales de lesiones causadas por maquinaria y equipos agrícola: una revisión sistemática de la literatura

Se realizó una revisión bibliográfica sobre lesiones provocadas por maquinaria en la agricultura. Los estudios se clasificaron en tres grupos: lesiones provocadas por máquinas o equipos agrícolas, factores que las causaban y patrones de dichas lesiones. Los resultados mostraron que el tractor era el principal responsable de las lesiones en todos los lugares. Las máquinas de cosecha y herramientas manuales o eléctricas, los vehículos todoterreno y las máquinas para trabajar madera, fueron causantes de lesiones en Asia, América del Norte y Europa, respectivamente. El factor más importante relacionado con las lesiones fue la escasa formación sobre utilización de maquinaria y equipos. Los patrones variaban en función de la interacción del trabajador con la máquina. Por ejemplo, los vuelcos en tractor podían dar lugar a lesiones en la cabeza y fracturas.

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TEMÁTICA	Accidentes y Enfermedades Laborales

ARTÍCULO 20: Understanding Stakeholder Dissemination Preferences for an Agriculture, Forestry, and Fishing Injury Surveillance System

Researchers and epidemiologists are working to improve the capture of agriculture, forestry, and fishing (AgFF) injuries in a variety of ways. A critical component of any surveillance system is the dissemination of information. The purpose of this paper is to report on a survey conducted with AgFF injury surveillance stakeholders to understand preferred dissemination strategies. The survey was distributed using REDCap via web link to organizational stakeholders, which included advisory board members, safety trainers, industry managers and workers, and research collaborators. In total, there were 75 respondents (21% response rate). Occupation and industry influenced preference in update methods. Regarding the length and breadth of updates, 63% of respondents prefer reports (one to five pages), followed by 57% desiring a summary (less than one page), while only 24% wanted a detailed analysis. Social media and news preferences were also different among stakeholders. Surveillance data were desired for 1) trend analysis, 2) tailoring activities and solutions for education, training, outreach and interventions and 3) for research purposes such as grant proposals and evaluation. The dissemination of injury surveillance data should be tailored to the intended audience. Greater attention needs to be paid to the ways in which we share our findings..

Comprender las preferencias de difusión de los interesados para un sistema de vigilancia de lesiones en la agricultura, silvicultura y pesca

Se investigó la forma en la que los trabajadores interesados en vigilancia de lesiones en la agricultura prefieren recibir la información. Para ello, se realizó una encuesta a 75 personas interesadas (miembros del consejo asesor, formadores de seguridad, gerentes, etc.) El 63% preferían informes de entre una y cinco páginas, el 57% indicaban su preferencia por un resumen inferior a una página y el 24% pedían un análisis detallado. Se identificaron también tres finalidades para las que se querían conocer estos datos: análisis de tendencias, personalización de intervenciones o formaciones e investigación.

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ARTÍCULO 21: Injuries Among Hispanic/Latinx Agricultural Workers Seen in Illinois Hospitals

Objective: Agriculture is a dangerous industry, with evidence indicating a disproportionate burden among Hispanic/Latinx workers. There is a need to expand the utilization of different data systems to improve the surveillance of precarious workers within agriculture. This analysis describes inclusion criteria to identify farm-related injuries and illnesses in hospital data utilizing ICD-10 codes to better assess health equity issues involving Hispanic/Latinx workers and their associated costs.

Methods: Discharge data of agriculture-related injuries and illnesses treated in Illinois hospitals and emergency departments from 2018 to 2021 were extracted using ICD-10 diagnosis and location of injury codes. Injury cause, nature, severity, and course of clinical care are stratified by ethnicity. Multivariable models were developed to assess differences in injury severity, level of care required, and cost of care.

Results: We identified 3,745 farm-related injuries and illnesses treated in Illinois hospitals between 2018 and 2021, of which 196 involved Hispanic/Latinx individuals. Hispanic/Latinx patients were substantially younger and disproportionately covered by workers' compensation insurance or uninsured. Compared to non-Hispanic/Latinx individuals, Hispanic/Latinx patients suffered injuries from different mechanisms, particularly involving animals and cutting/piercing instruments. While non-Hispanic/Latinx individuals demonstrated more severe injuries based on the descriptive statistics, after controlling for confounding (particularly age), we did not observe ethnic disparities in injury severity or level of care required. However, the cost of care was equivalent to or higher among Hispanic/Latinx persons.

Conclusion: The case definition used for this analysis identified agriculture-related cases and provided insights on the course of clinical care by ethnicity. This strategy would likely yield valuable information in states with larger and more diverse agricultural workforces. More targeted research to appropriately scope the issue and inform interventions is needed to understand differential exposure and reduce agricultural workplace hazards and address the financial burden resulting from farm-related injuries.

Lesiones entre trabajadores agrícolas hispanos/latinos atendidos en hospitales de Illinois

Se analizaron los datos de hospitales y departamentos de lesiones (correspondientes a 2018-2021 en Illinois) y enfermedades relacionadas con la agricultura para estudiar los casos en trabajadores hispanos/latinos. Se identificaron 3745 lesiones y enfermedades, de las que 196 correspondían a personas hispanas/latinas. Estos eran más jóvenes que los de otras etnias y no solían tener seguro. Las causas de estos problemas eran por uso de herramientas cortantes o por animales. El coste de atención era superior para estos trabajadores.

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ARTÍCULO 22: Using State Agency Reports to Augment Ohio’s Agricultural Injury Surveillance Efforts

Background: Agriculture is a hazardous industry with undocumented injury events. Credible surveillance measures are critical for this industry, especially to guide injury prevention programs with targeted recommendations for specific commodity groups and populations. This multi-phase study explored the feasibility for two state agency databases, the Ohio Bureau of Workers’ Compensation (BWC) Program and the Emergency Medical Services Incident Reporting System (EMSIRS), to augment the state’s Bureau of Labor Statistics (BLS) annual reports.

Methods: BWC data described injury claims in agricultural workplaces from 1999 to 2008. State EMSIRS data described the types of medical emergencies for which EMS services were requested to Ohio farms in 2013–2014. Descriptive analyses were performed on each distinctive source.

Results: Over 14,000 BWC claims were analyzed, with primary nature of injury identified as sprains and strains of bodily extremities; falls were the most common cause of injury. The EMSIRS data provided 1,376 cases, where EMS services were requested to Ohio farms at injury onset. Some cases had possibility to be excluded in CFOI or employment claims data, with 24% patients 65 years and older and 6% children 13 years and younger. The primary cause of injury was falls, and the highest reported injury type was blunt trauma.

Conclusions: Both BWC and EMSIRS databases showed the potential to enhance Ohio’s agricultural surveillance data with viable information not found in previously used systems. Each agency database had its own merits to further clarify and quantify morbidity. When used together, these sources enrich surveillance statistics to describe Ohio’s agricultural injury incidents.

Uso de informes de agencias estatales para reforzar los esfuerzos de vigilancia de lesiones agrícolas en Ohio

Se analizó la posibilidad de emplear dos bases de datos de agencias estatales con el objetivo de mejorar la vigilancia de lesiones en el ámbito de la agricultura en Ohio. En concreto, se analizaron datos de dos de fuentes para complementar los informes anuales de la Oficina de Estadísticas Laborales. Los datos de una de las bases de datos, correspondientes al período de 1999 a 2008, indicaron 14000 reclamaciones por lesiones laborales, destacando esguinces y torceduras provocadas por caídas. Los datos de la otra fuente, correspondientes a 2013-2014, determinaron 1376 lesiones en granjas, para las que se solicitó asistencia médica. Ambas agencias proporcionaron datos adicionales no obtenidos por sistemas previos de vigilancia, lo que mejoró el estudio de lesiones en la agricultura.

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ARTÍCULO 23: Data Driven Identification of Injury Risk Factors During Expansion on Irish Dairy Farms

Objectives: This paper sought to determine risk factors of occupational injury in the Irish dairy farming sector and to estimate the roles of both dairying expansion and the discipline of agricultural extension in influencing reducing injury occurrence.

Methods: Data for this study was obtained via the Irish National Farm Survey (NFS). In total, 260 farm (83.6% of NFS dairy farm sample) workplace injury survey questionnaires were completed by NFS recorders by interviewing principal farm operators for year 2017. Injury survey data was analysed for 48 variables in conjunction with NFS core farm socio-economic, physical and financial data. Additionally, core data from 2010 for 78.5% of farms surveyed in 2017 was included in the study. Data were analysed using a three-step statistical testing process which met all Binary Logistic Regression assumptions.

Results: The study found that dairy farms had a higher farm workplace occupational injury level compared to a previous study. The study data indicates occurrence of elevated injury levels on farms which expanded and which were intensively managed from a milk production perspective. Farm expansion was associated with increased labor units used and increased investment per hectare. The study also found that use of extension services and farm discussion group participation were not associated with injury occurrence.

Conclusions: This study demonstrates how a retrospective farm workplace occupational injury survey of Irish dairy farms, analysed in combination with farm business data can be used to identify injury risk factors, including those associated with production expansion. Irish dairy farms have a heightened farm workplace occupation injury level while dairy production expansion increased injury levels. Extension engagement did not influence on injury levels. Approaches to improve farm safety on dairy farms are outlined.

Identificación basada en datos de factores de riesgo de lesiones durante la expansión de las granjas lecheras irlandesas

Se investigaron los factores de riesgo de lesiones relacionadas con el trabajo en el sector lechero de Irlanda y cómo afectaba la expansión del sector y la asistencia técnica agrícola. Los datos se obtuvieron mediante la Encuesta Nacional Agrícola de Irlanda, correspondiendo a cuestionarios pasados en 260 granjas en el año 2017. Se consideraron 48 variables, además de los datos socioeconómicos, físicos y financieros de las granjas. Los resultados mostraron que las granjas lecheras tenían mayor número de lesiones relacionadas con el trabajo que en un estudio realizado previamente. Además, se encontró un aumento de lesiones como resultado de la expansión de las granjas. La asistencia técnica no se relacionó con la aparición de lesiones.

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TEMÁTICA Accidentes y Enfermedades Laborales

ARTÍCULO 24: Exploratory Analysis of Farm Vehicle and Farm Labor Transportation-Related Crashes

Objective: The purpose of this study was to investigate characteristics associated with farm vehicle and farm labor transportation-related roadway crashes in the state of Florida. Agricultural roadway crashes related to these vehicles have not been explored in Florida.

Methods: The data for this study comes from the Florida Department of Highway Safety and Motor Vehicles (FLHSMV) for the years 2013–2021. The data is recorded by the Florida Highway Patrol when a vehicular crash has occurred. The data is then coded to allow the selection of farm and agricultural-related vehicles. Specifically, this study focuses on farm labor transport vehicles and farm vehicles (e.g. farm tractors).

Results: There were 744 farm vehicle- and 209 farm labor transportation-related crashes during the 9-year study period. The farm labor transport vehicle crashes involved a total of 420 vehicles and 1,329 individuals, and the farm vehicle crashes involved 1,458 vehicles and 1,652 individuals. Injury risk for non-farm labor transportation vehicle occupants was significantly higher than injury risk for farm labor transportation vehicle occupants.

Conclusions: The average fatality rate for farm vehicle-involved (2.1 fatalities per 100 crashes) and farm labor transportation vehicle-involved crashes (2.9 fatalities per 100 crashes) were much higher than the overall FL roadway crash fatality rate (0.45 fatalities per 100 crashes).

Análisis exploratorio de accidentes relacionados con vehículos agrícolas y el transporte de mano de obra agrícola

Se investigaron los accidentes provocados por vehículos agrícolas y durante el desplazamiento de trabajadores en Florida. La información correspondió al período entre 2013 y 2021 y se obtuvo del Departamento de Seguridad Vial y Vehículos Motorizados de Florida. En este intervalo de tiempo se produjeron 744 accidentes con vehículos agrícolas y 209 durante el desplazamiento. Se concluyó que la tasa de mortalidad promedio relativa a los casos de este estudio fue superior a la de los accidentes en las carreteras de Florida.

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ARTÍCULO 25: Counting Farm Injuries and Fatalities: An Assessment of Irish Occupational Health and Safety Surveillance Data Systems

Objective: Generation of reliable data underpins the effectiveness of Occupational Health and Safety (OHS) surveillance systems. Despite the importance of understanding OHS data systems, there are few papers that provide overviews of their structure and/or content. This paper introduces a basic framework for assessing OHS data systems that will be of use to researchers internationally. We applied this approach to assess the Irish OHS data system by undertaking a data mapping exercise.

Method: We developed a checklist based on recommendations of monitoring and measurement of OHS proposed by the National Academies of Sciences, Engineering, and Medicine (USA). An assessment of published reports that present systematic OHS surveillance data was undertaken to identify the institutions or organisations responsible for collecting and curating the data, their remit, and, associated with this, their respective case definitions. We then provide an overview of the variables collected and these are then mapped against the checklist.

Results: The assessment highlights that whilst the farm fatalities dataset provides complete coverage of all fatalities, regardless of age or employment status, the same is not true of the three non-fatal injuries datasets reviewed. There are important differences in the data collection methods and, associated with this, which populations are covered.

Practical Application: The assessment approach provides valuable insights into the strengths and weaknesses of a critical element of OHS surveillance systems, namely the production of datasets. This knowledge is important for researchers as understanding the data that informs their research is fundamental to good science. It is critical for policy-makers and other stakeholders to understand the strengths and weaknesses on which OHS policy, strategies, or education and training interventions are developed.

Recuento de lesiones y muertes en las explotaciones agrícolas: evaluación de los sistemas de vigilancia de la seguridad y la salud en el trabajo en Irlanda

Debido a la importancia de datos fiables para el funcionamiento de los sistemas de vigilancia de seguridad y salud en el trabajo, se realizó un enfoque para la evaluación de sistemas de datos de seguridad y salud en el trabajo, en concreto para Irlanda, mediante un mapeo de datos. Se evaluaron los informes publicados sobre vigilancia y se determinaron las organizaciones que recopilaban datos, su competencia y los casos. Se describieron las variables y se compararon con una lista de verificación. Los resultados mostraron que los datos de muertes en agricultura eran completos, no ocurriendo lo mismo con los datos de lesiones.

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ARTÍCULO 26: A Summary of Fatal Injury Surveillance Methods in Australian Agriculture and Their Impact on Safety Policies and Practices

Agriculture is one of the most important and also hazardous industries in Australia. Having a sound knowledge and understanding of the circumstance of injury events is critical to developing evidence-based intervention programs. This paper aims to provide a brief historical snapshot of the development of data systems underpinning the assessment of fatal farm injury in Australia and how it has impacted on safety policy and practice. The first Australian studies used coronial information to explore agricultural fatalities, these studies reviewed paper-based records (in-situ) and collected the information for analysis and reporting. This task was laborious and costly. When the National Coronial Information System (NCIS) was established in 2000, this allowed access to coronial records online. Information provided about the deceased includes demographics, contextual details on the nature of the fatality and autopsy, toxicology, and police reports, as-well-as the coroner's finding. Information from the NCIS, along with media reports, have been used to develop the farm fatality database. This information has been used to inform the safety goals and targets for farm commodity groups, identify key risks, provide long-term benchmark indicators and underpin the development of prevention materials and training resources. Without accurate, timely, concise and relevant data about injury occurring on farms, there is no evidence to drive policy and practice or to evaluate programs of work. As such, the continued utilization and extension of the NCIS data will prove crucial to further reducing the burden of preventable fatal injuries on Australian farms.

Resumen de los métodos de vigilancia de lesiones mortales en la agricultura australiana y su impacto en las políticas y prácticas de seguridad

Se realizó una revisión histórica de los sistemas de datos de lesiones agrícolas mortales utilizados en Australia y de su utilidad para las políticas y prácticas de seguridad. Los primeros datos provenían de información forense in situ y en papel. En 2000 apareció el Sistema Nacional de Información Forense, pudiendo acceder online. Gracias a dicha información y junto con informes de los medios de comunicación, permitieron crear una base de datos de muertes en el sector de la agricultura. Estos datos se emplearon para proponer objetivos de seguridad, determinar los riesgos, desarrollar materiales para prevención, formación, etc. Esto permitía trabajar en reducir las lesiones mortales provocadas en este ámbito.

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RURAL AND REMOTE HEALTH

ARTÍCULO 27: The link between pesticide exposure and suicide in agricultural workers: a systematic review

Introduction: The aim of this study was to conduct a systematic literature review to find the association between pesticide exposure and the incidence of suicide in agricultural workers, focusing on analyzing the profile of agricultural workers, the countries with the highest number of publications and, especially, the link between occupational exposure to pesticides, the degradation of mental health and suicide among agricultural workers.

Methods: A systematic literature review was conducted following the PRISMA protocol using Scopus, Web of Science, and PubMed databases, where 33 articles were screened to compose the final portfolio.

Results: There is a strong link between pesticide exposure and suicide in agricultural workers. Smoking, alcohol consumption, exposure time, and marital status influence the decision to die by suicide. Brazil and the US lead the ranking in publications, demonstrating that it is not a problem only for developing countries. Organophosphates are the main pesticides used, and they degrade an enzyme crucial for the nervous system, which can result in mental disorders and consequent suicide in agricultural workers.

Conclusion: There is a need for stricter norms for the commercialization and use of pesticides. There is also a need for providing training to agricultural workers on the application and storage of pesticides, and to communicate about the compounds and the consequences of pesticides to mental health.

La relación entre la exposición a pesticidas y el suicidio en trabajadores agrícolas: una revisión sistemática

Se llevó a cabo una revisión de literatura para identificar la relación entre la exposición a pesticidas y el suicidio en trabajadores del sector de la agricultura. El estudio se centró en determinar el perfil de los agricultores, los países con más publicaciones y la relación entre exposición a pesticidas, salud mental y suicidio. Se siguió el protocolo PRISMA y se consultaron tres bases de datos (Scopus, Web of Science y PubMed). Tras la búsqueda, se seleccionaron 33 artículos. Los resultados mostraron que había una gran relación entre la asociación a pesticidas y el suicidio. Otros factores, como el tiempo de exposición, tabaco, alcohol y estado civil también influían. Brasil y Estados Unidos fueron los países con mayor número de publicaciones, por lo que no se trataba de un problema únicamente de países en desarrollo. Los pesticidas más empleados degradaban una enzima importante del sistema nervioso, pudiendo desencadenar problemas mentales y suicidio. Se concluyó la necesidad de formación de trabajadores sobre uso de plaguicidas, sobre su composición y sus consecuencias, además de normativa más estricta para su empleo y venta.

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TEMÁTICA Pesticidas

ARTÍCULO 28: Farming and the risk of developing osteoarthritis in Alberta, Canada

Introduction: Because farming is a physically demanding occupation, farmers may be susceptible to developing osteoarthritis (OA). The aim of this study was to determine the risk of developing OA in Canadian farm, non-farm rural and urban residents.

Methods: A retrospective cohort study of five Alberta health administrative databases examined the risk of developing OA among three groups: farm (n=143 431), non-farm rural (n=143 431) and urban (n=143 431) residents over the fiscal years 2000–2001 through 2020–2021. The algorithm for OA ascertainment defined cases based on criteria including one hospital admission, two physician visits within a 2-year interval, or two ambulatory care visits within 2 years. Incidence rates, lifetime risk, and mortality rates were calculated. Cox proportional hazard models compared the incidence of OA for the three groups over the 21 years.

Results: A total of 26 957 OA cases were identified among 1 706 256 person-years (PYs) in the farm cohort. The crude incidence rate of OA over a period of 21 years ranged from 19.1 (95% confidence interval (CI) 18.6–19.6) per 1000 PYs in 2001 to 10.0 (95% CI 9.6–10.5) per 1000 PYs in 2021. The overall incidence rate was higher in the farm group (15.8 (95%CI 15.6–16.0) per 1000 PYs) as compared to the non-farm rural (14.7 (95%CI 14.5–14.9) per 1000 PYs) and the urban groups (13.3 (95%CI 13.1–13.4) per 1000 PYs). After adjusting for age and sex, the farm (6%; 95%CI 4–8%), and non-farm rural (9%; 95%CI 7–12%) groups had higher incidence rates than the urban group. The unadjusted non-injury mortality rate for the farm group with OA was lower (13.2 (95%CI 12.9–13.5) per 1000 PYs) than both the urban (14.5; 95%CI 14.1–14.8) and rural (18.0; 95%CI 17.6–18.4) groups. After adjusting for mortality, the lifetime risk of developing OA was 27.7% for farm residents, 25.6% for the non-farm rural cohort, and 24.0% for the urban cohort.

Conclusion: When accounting for age and sex, farm and non-farm rural residents have a higher risk of developing OA as compared to the urban population. The higher mortality-adjusted lifetime risk of developing OA among farm residents highlights the necessity of specific interventions aimed at reducing the impact of this condition in rural communities. Further research is required to identify specific occupational and lifestyle risk factors associated with OA among farmers and to develop effective strategies for prevention and management.

La agricultura y el riesgo de desarrollar osteoartritis en Alberta, Canadá

Se investigó el riesgo al que se exponen los residentes agrícolas, rurales no agrícolas y urbanos en Canadá de sufrir osteoartritis. Se analizaron cinco bases de datos de salud de un período de 21 años. Los resultados mostraron que la tasa de incidencia de esta enfermedad fue mayor en los trabajadores de agricultura que en el resto de los grupos. Además, considerando sexo y edad, los residentes agrícolas y no agrícolas tenían un riesgo más elevado de sufrir osteoartritis que la población urbana.

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SAFETY SCIENCE

ARTÍCULO 29: Causes and prevention of cattle-handling injuries: An interview study

Introduction: A high proportion of injuries on farms occur while handling cattle. Previous studies have identified risk factors such as worker gender, race and age, and farm size, which are difficult to translate into preventive efforts.

Objective: The objective of this study was to identify causes of cattle-handling injuries related to the handler, the cattle and the facilities, which could be used in injury-prevention efforts.

Methods: Structured interviews were conducted with 97 persons who had been injured while handling cattle during the previous 12 months. The interviews elicited information about the injury incidents, and the role of the facilities, cattle behaviour and the handler in the incident. The interviews were analysed by an experienced safety researcher and an experienced agricultural work environment advisor, to identify possible preventive actions related to the facilities and handler behaviour.

Results: Most injuries occurred while the cattle were trying to flee something they perceived as unpleasant, such as hoof trimming, or as a result of cattle's defensive behaviour, such as kicking. Up to 71% of the injuries could have been prevented through changes in the facilities, primarily better-designed transfer alleys, better restraint systems during handling and clinical treatment, and the correction of design flaws in existing installations. Handler behaviour was a factor in all but one injury. Risky work plans were the primary factor in 1/3 of the injuries, as was risk-taking.

Conclusion: There is great potential for preventing cattle-handling injuries by improving farm facilities and work practices, to better take handler and animal behaviour into account. Efforts that aim to prevent cattle-handling injuries should focus on eliminating hazardous work practices in well-known high risk situations, where the handler is in a risk zone when cows are fearful or agitated. Stockmanship training is crucial to handling cattle properly and efficiently, when interaction is necessary, but from a safety perspective, it is insufficient as a stand-alone prevention strategy. Successful prevention calls for facility and equipment design to be used to limit direct interaction between handlers and cattle, for instance by introducing barriers between them.

Causas y prevención de lesiones en el manejo de ganado: Un estudio basado en entrevistas

Se analizaron las causas de lesiones durante el manejo de ganado, en concreto, asociadas con el trabajador, las instalaciones y el ganado. Para ello, se llevaron a cabo entrevistas a 97 ganaderos que habían sufrido alguna lesión en los 12 meses previos. Los resultados indicaron que los principales factores de riesgo eran huidas o patadas del ganado. Por otra parte, el 71% de estas lesiones podrían no haberse producido si se hubieran realizado modificaciones en instalaciones (mejores sistemas de sujeción o rediseños de instalaciones y pasillos). El comportamiento del trabajador también influía, afectando por ejemplo la aceptación de riesgos o un plan de trabajo arriesgado.

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TEMÁTICA	Accidentes y Enfermedades Laborales

ARTÍCULO 30: Sleep issues and burnout in Irish farmers: A cross sectional survey

Farming can be a demanding, solitary, and unpredictable occupation. As a result, farmers may be more susceptible to sleep issues and burnout than workers in other occupations. However, economic and social pressures that may cause burnout and sleep issues in farmers vary greatly between nationalities. There is a lack of research on sleep and burnout in European, and specifically Irish, farmers using reliable psychometric tests. Therefore, we conducted a cross-sectional prevalence assessment of sleep issues and burnout with a population sample of 351 Irish farmers. Using the Pittsburgh Sleep Quality Index (PSQI), a subscale of the Maslach Burnout Inventory (MBI), and the Short Form Health Survey-12 (SFHS), we identified how farmers' sleep and burnout were correlated with their mental and physical health and identified the role of individual differences such as socioeconomic status, age, and gender. Irish farmers reported frequent burnout (23.6%) and widespread sleep issues (50.1%), with burnt out farmers reporting especially poor sleep. This has serious implications for farmers' health, as burnt out farmers and farmers with poor sleep both reported worse mental and physical health. We identified age and parenthood as risk factors for burnout but identified no gender differences. While these exploratory findings are constrained by our cross-sectional design, they extend literature on occupational health risks in European agriculture to cover poor sleep and burnout. Irish farmers as a population need health intervention targeting sleep and burnout; especially in older and parent populations.

Problemas de sueño y agotamiento laboral en agricultores irlandeses: una encuesta transversal

Se llevó a cabo un análisis de los problemas de sueño y el agotamiento laboral que sufren los trabajadores agrícolas irlandeses. Participaron 351 trabajadores y se utilizaron escalas, índices y encuestas. Se demostró que el 50,1% de estos profesionales no descansaban bien y que el 23,6% sufría un agotamiento laboral frecuente. Esto tenía como consecuencia un empeoramiento de la salud mental y física, siendo necesario tomar medidas preventivas.

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TEMÁTICA Accidentes y Enfermedades Laborales

SAFETY AND HEALTH AT WORK

ARTÍCULO 31: Comparative Study of Heavy Metal Blood Serum Level Between Organic and Conventional Farmers in Eastern Taiwan

Numerous studies have indicated that organic fertilizers (OFer) might contain heavy metals (HMs) that present health risks to organic farmers (OFar). This study compared the concentrations of six HMs (Zn, Ni, Cd, Cu, Pb, Cr) in the blood of two distinct groups of farmers: 30 OFar from a designated organic area in eastern Taiwan, and 74 conventional farmers (CFar) from neighboring non-organic designated regions. The findings revealed that the OFar exhibited higher levels of Zn ($1202.70 \pm 188.74 \mu\text{g/L}$), Cr ($0.20 \pm 0.09 \mu\text{g/L}$), and Ni ($2.14 \pm 1.48 \mu\text{g/L}$) in their blood compared to the CFar ($988.40 \pm 163.16 \mu\text{g/L}$, $0.18 \pm 0.15 \mu\text{g/L}$, and $0.77 \pm 1.23 \mu\text{g/L}$), respectively. The disparities in Zn, Cr, and Ni levels were measured at $214.3 \mu\text{g/L}$, $0.02 \mu\text{g/L}$, and $1.37 \mu\text{g/L}$, respectively. Furthermore, among the OFar, those who utilized green manures (GM) displayed significantly elevated blood levels of Zn ($1279.93 \pm 156.30 \mu\text{g/L}$), Cr ($0.24 \pm 0.11 \mu\text{g/L}$), and Ni ($1.94 \pm 1.38 \mu\text{g/L}$) compared to individuals who exclusively employed chemical fertilizers (CFer) ($975.42 \pm 165.35 \mu\text{g/L}$, $0.19 \pm 0.16 \mu\text{g/L}$, and $0.74 \pm 1.20 \mu\text{g/L}$), respectively. The differences in Zn, Cr, and Ni levels were measured at $304.51 \mu\text{g/L}$, $0.05 \mu\text{g/L}$, and $1.20 \mu\text{g/L}$, respectively. As a result, OFar should be careful in choosing OFer and avoid those that may have heavy metal contamination.

Estudio comparativo del nivel de metales pesados en sangre entre agricultores orgánicos y convencionales en el este de Taiwán

Según diferentes estudios, los fertilizantes orgánicos pueden contener metales pesados, que son un riesgo para la seguridad de los trabajadores que los utilizan. En esta investigación se analizaron las concentraciones en sangre de seis metales pesados en dos grupos de agricultores. Uno de los grupos estaba formado por 30 participantes que se dedicaban a agricultura orgánica. El otro grupo, estaba formado por 74 agricultores de zonas no orgánicas. Los resultados indicaron niveles más elevados de Zn, Cr y Ni en sangre para los agricultores orgánicos. Entre ellos, los que empleaban abonos verdes tenían valores más elevados que los que usaban fertilizantes químicos. Se deben evitar los fertilizantes que contengan estos metales.

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AGRICULTURE

ARTÍCULO 32: Mapping the Research into Mental Health in the Farming Environment: A Bibliometric Review from Scopus and WoS Databases

A significant part of the world economy is devoted to agriculture. The sector accounts for 27% of global employment and 4% of global GDP. Approximately 28.5 million farms are located in Europe and Latin America. In this sector, many uncertainties negatively impact farmers' mental and emotional well-being. Many factors contribute to increased stress and a worsening of farmers' mental health, including health problems resulting from the conducting their profession, economic uncertainty, the effects of climate change, and technological changes in the agricultural sector. Despite the existence of literature review studies related to mental health in agriculture, no bibliometric review study has been conducted. This article presents the first in-depth bibliometric analysis of the scientific literature on mental health in agriculture and operates based on Scopus and Web of Science databases. The results are presented as tables and explanatory diagrams describing the findings. The findings show the exponential increase in research in the last ten years and the evolution towards more social and health-related topics across the previous five years. The most common keywords are "suicide", "stress", and "depression". No topic has been found where the current scientific production was significantly larger than the rest, indicating the wide variety of research sub-topics in this field.

Mapeo de la investigación sobre salud mental en el entorno agrícola: una revisión bibliométrica a partir de las bases de datos Scopus y WoS

Se realizó una revisión bibliométrica de salud mental centrada en el sector de la agricultura, empleando Web of Science y Scopus. Se concluyó un aumento de investigación sobre este tema en los 10 últimos años. Las palabras claves más frecuentes fueron depresión, estrés y suicidio.

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TEMÁTICA Riesgo Salud Mental

ARCHIVES OF ENVIRONMENTAL & OCCUPATIONAL HEALTH

ARTÍCULO 33: Assessing occupational pesticide exposure in Latin America and the Caribbean: Methods review for agricultural vulnerability reduction

A rapid review was conducted to describe pesticide exposure assessment methodologies in Agricultural Work Contexts (AWC)s in Latin America and the Caribbean (LAC), in order to provide elements to reduce vulnerabilities within the agricultural population. A final number of 79 articles were selected from Medline via Pubmed, LILACS, and SciELO. In the region, family agriculture is the predominant form of agricultural production (72%) in informal agricultural work contexts (AWCs), which are characterized by small-scale diversified agricultural production, lower educational attainment, limited income, and a lack of social and healthcare security for the families. Indirect exposure assessment methods were the most commonly reported (58%), and its use was associated with informal AWCs ($p=0.011$). Understanding AWCs and employing appropriate assessment methods can contribute to addressing vulnerabilities in the agricultural sector.

Evaluación de la exposición en el trabajo a plaguicidas en América Latina y el Caribe: Revisión de métodos para la reducción de la vulnerabilidad agrícola

Se llevó a cabo una revisión para conocer cómo se evaluaba la exposición a plaguicidas de trabajadores del sector de la agricultura en América Latina y el Caribe. Se seleccionaron 79 artículos empleando varias bases de datos. La agricultura era principalmente familiar, caracterizada por personas con baja educación e ingresos y sin acceso a seguridad social y salud. Los métodos de evaluación más empleados para analizar la exposición a plaguicidas eran indirectos.

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TEMÁTICA	Pesticidas

SAFETY

ARTÍCULO 34: Noise Exposure, Prevention, and Control in Agriculture and Forestry: A Scoping Review

Noise is a major physical hazard in agricultural activities, and numerous research activities have managed to detect its effects, resulting in surveys and measurements which help to define exposure limits, prevention methods, and control strategies. This review aims to collect and analyse the data from research studies and to provide a comprehensive overview on the subject. Thus, a set of 81 papers, gathered from the Scopus and PubMed scientific databases, has been analysed to provide information regarding the evolution of noise exposure levels over time, to highlight findings on noise-induced hearing loss (NIHL), and to list strategies for noise prevention and control in agriculture. Bibliographic research showed that noise measurements between 1991 and 2022, included in scientific research on farming, forestry, and animal husbandry, mainly reported values beyond the threshold of 85 dB(A); furthermore, several research activities on NIHL showed that farmers' family members and children are often exposed to high levels of noise. Lastly, an analysis of the prevention and control strategies over time is provided, focusing on prevention programmes, screening, and the use of hearing protection devices (HPD). The identified literature suggests that additional efforts are required in regards to machinery design relating to the socio-technical aspects of agricultural activities and that side-effects of NIHL, as well as the negative impact of noise on other risks, might deserve further investigation.

Exposición al ruido, prevención y control en la agricultura y la silvicultura: una revisión del alcance

El ruido es un riesgo para los trabajadores del sector de la agricultura, por lo que se llevó a cabo una revisión bibliográfica centrada en este tema. Se analizaron 81 artículos de Scopus y PubMed. Se concluyó que la mayor parte de las mediciones del nivel de ruido entre el año 1991 y 2022 superaban los 85 dB (A). Las familias de agricultores también se exponían a elevados niveles. Se presentaron métodos de prevención de este riesgo, incluyendo el uso de dispositivos de protección.

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