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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 segundo cuatrimestre del año 2023. 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.

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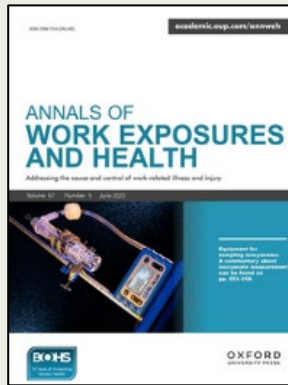
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# ANNALS OF WORK EXPOSURES AND HEALTH

## ARTÍCULO 1:

### Sun Protection in German Outdoor Workers: Differences by Sex and Job-Related Characteristics

**Background:** Ultraviolet (UV) exposure during outdoor work increases the risk of developing skin cancer. Therefore, the uptake of recommended sun protection behaviors is important to prevent UV-related skin damage in the population of outdoor workers. To develop targeted prevention campaigns, information on the use of sun protection behaviors in different industries is needed.

**Methods:** A total of 486 outdoor workers were surveyed on the use of several sun protection measures as part of the 7th wave of the National Cancer Aid Monitoring. Furthermore, details on job-related characteristics, sociodemographics, and skin type were assessed. Descriptive analyses stratified by sex were conducted.

**Results:** In general, use of sun protection was insufficient (e.g. 38.4% used sunscreen on the face). Sun protection behavior differed between female and male outdoor workers with females being more likely to use sunscreen and males being more likely to wear sun protective clothes and headgear. For male outdoor workers, we revealed several associations with job-related characteristics. For instance, those who were employed full time were more likely to wear sun protective clothes (e.g. shoulder-covering shirt: 87.1% versus 50.0%,  $P < 0.001$ ).

**Discussion:** We identified deficits in sun protection behavior in outdoor workers and differences by sex- and job-related characteristics. These differences offer starting points for targeted prevention measures. In addition, the findings may inspire qualitative research.

## ¿De qué trata este artículo?

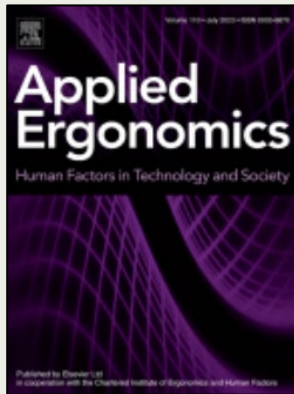
*Protección solar en trabajadores al aire libre alemanes: diferencias por sexo y características relacionadas con el trabajo*

Los trabajadores que realizan sus tareas en el exterior tienen riesgo de sufrir cáncer de piel, debido a la exposición a rayos ultravioletas. Se realizó una encuesta a 486 trabajadores de exterior acerca de la adopción de medidas de protección solar. Se tuvieron en cuenta diferencias por sexo y características relacionadas con el trabajo. Solamente un 38,4% de los participantes empleaban protección solar en la cara. En mujeres era más común el uso de protector solar y en los hombres el empleo de ropa o gorros para protegerse del sol. Se determinó que la protección frente a este riesgo no era suficiente, siendo necesaria más investigación.

<b>AUTORES</b>	<i>Katharina Diehl, Luisa Brokmeier, Tobias Konkel, Eckhard W Breitbart, Hans Drexler, Tatiana Görig</i>
<b>DOI</b>	<a href="https://doi.org/10.1093/annweh/wxad014">https://doi.org/10.1093/annweh/wxad014</a>
<b>PUBLICACIÓN</b>	<i>Annals of Work Exposures and Health, 2023, Volumen 67, Número 5, pp. 622-636</i>

**TEMÁTICA:** Temperatura





## APPLIED ERGONOMICS

### ARTÍCULO 2:

#### **A fishermen-developed intervention reduced musculoskeletal load associated with commercial Dungeness crab harvesting**

This study characterized physical risk factors associated with injuries during a Dungeness crab harvesting task and evaluated the efficacy of a fishermen-developed ergonomic control (banger bar) in mitigating physical risk factors, including biomechanical loads in the low back, shoulders, and upper extremities, and postural instability. In a repeated-measures laboratory study, 25 healthy male participants performed manual crab harvesting tasks in five conditions: without any banger bar (control) and with 4 bars of differing heights or designs. The results showed that the ergonomic control reduced trunk and shoulder angles, L5/S1, and shoulder moments; muscle activities in low back, shoulders, and upper extremities; perceived exertion ratings; and postural sway measures. Moreover, these measures were lowest when the bar height was at 60 cm, indicating that the banger bar can reduce the risk of musculoskeletal injuries and postural instability, and that bar height is an important factor affecting these injury risk measures.

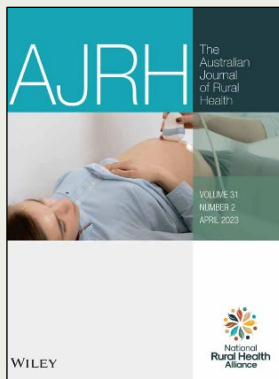
## ¿De qué trata este artículo?

*Una intervención desarrollada en pescadores redujo la carga musculoesquelética asociada con la captura comercial de cangrejo Dungeness*

Esta investigación identificó los factores de riesgo físico a los que se exponen los trabajadores encargados de la captura de cangrejos Dungeness. Evaluó la eficacia de una intervención ergonómica para disminuir el riesgo en la zona lumbar, hombros, extremidades superiores y la adopción de posturas perjudiciales. Se evaluó a un total de 25 trabajadores (hombres) que llevaron a cabo la captura de cangrejos manualmente de cinco formas: sin emplear barra y utilizando cuatro barras con alturas y diseños diferentes. La intervención ergonómica mejoró las posturas. La altura de la barra se determinó como factor importante para la prevención de lesiones.

<b>AUTORES</b>	<i>Kiana Kia, Laurel Kincl, Allen Chan, Jeonj Jo Kim</i>
<b>DOI</b>	<a href="https://doi.org/10.1016/j.apergo.2023.104016">https://doi.org/10.1016/j.apergo.2023.104016</a>
<b>PUBLICACIÓN</b>	<i>Applied Ergonomics, 2023, Volumen 110, 104016</i>

**TEMÁTICA:** Riesgo físico



## THE AUSTRALIAN JOURNAL OF RURAL HEALTH

### ARTÍCULO 3:

#### **Steering Straight: Adapting suicide risk safety planning as a prevention-focused self-management resource for the Australian farming community**

**Objective:** This paper draws on the principles of suicide risk safety planning to co-design a farming community resource for preventing and managing risks to mental health.

**Setting:** This project was undertaken in the Great South Coast Region of Victoria, Australia.

**Participants:** A working group (n = 6–8) from the Victorian farming community contributed to the iterative co-design and co-production of Steering Straight: My plan to keep on track. Twenty-four members of the farming community pilot tested Steering Straight.

**Design:** Co-design to develop, pilot and refine the resource with working group and target farming community.

**Results:** Steering Straight was viewed positively by the farming community as a tool that prompts prioritising well-being; encourages reflection, planning and concrete steps towards taking action; helps set and meet personal goals; is simple and practical; and identifies pathways to support. Most participants (94%) completed Steering Straight on their own, taking approximately 15–30 min to create their personalised plan. Questions most likely to be filled in related to recognising personal signs of deteriorating well-being and listing and planning enjoyable activities. A majority of participants (67%) kept a hard copy of their Steering Straight plan on hand to refer back to, while 78% expressed a preference for a digital version.

**Conclusion:** The co-design and co-production process resulted in a tailored prevention-focused resource that was accepted and valued by the farming community.

## ¿De qué trata este artículo?

*Dirección recta: Adaptación de la planificación de seguridad contra el riesgo de suicidio como un recurso de autogestión centrado en la prevención para la comunidad agrícola australiana*

Se diseñó un recurso para la prevención contra el suicidio en la comunidad agrícola. Un grupo de trabajo de Victoria (Australia) contribuyó en esta herramienta llamada "Steering Straigh: My plan to keep on track" y 24 agricultores lo probaron. El 94% de los participantes completaron "Steering Straigh" de forma independiente, tardando sobre 15 o 30 minutos en realizar un plan personalizado. Los participantes determinaron aspectos positivos como que priorizaba el bienestar, fomentaba la reflexión, la planificación, la aplicación de medidas, permitía determinar y conseguir metas personales, identificaba vías de apoyo y era una herramienta simple y práctica.

<b>AUTORES</b>	<i>Sonya Duke, Joanna Macdonald, Alison J. Kennedy</i>
<b>DOI</b>	<a href="https://doi.org/10.1111/ajr.12968">https://doi.org/10.1111/ajr.12968</a>
<b>PUBLICACIÓN</b>	<i>The Australian Journal of Rural Health, 2023, Volumen 31, Número 3, pp. 471-483</i>

**TEMÁTICA: Riesgo salud mental**

## ARTÍCULO 4:

### Co-designing a peer-led model of delivering behavioural activation for people living with depression or low mood in Australian farming communities

**Introduction:** Farmers face a range of factors that negatively influence their mental health and suicide risk, yet have limited access to appropriate support. Behavioural activation (BA) is an evidence-based therapy that can be effectively delivered by nonclinical workers. Working with members of farming communities to deliver BA to their peers has the potential to overcome many well-established barriers to mental health help-seeking and improve outcomes for this at-risk group.

**Objective:** This paper describes the findings of a co-design phase informing the development of a peer (farmer)-led approach for delivering BA for farmers living with depression or low mood.

**Design:** This qualitative study used a co-design approach involving members of the target community. Focus groups were transcribed and analysed using Thematic Analysis and the Framework approach.

**Findings:** Ten online focus groups with 22 participants were held over 3 months. Four overarching, interlinked themes were identified: (i) filling the gap in rural mental health support; (ii) alignment with the farming context—tailoring how, where and when we engage about mental health; (iii) the ‘messenger’ is as important as the message; and (iv) sustainability, governance and support.

**Discussion:** Findings suggest BA could be a contextually appropriate model of support for the farming community—given its practical and solution-focused approach—and could help improve access to support. Having peer workers deliver the intervention was viewed as appropriate. Ensuring governance structures are developed to support peers to deliver the intervention will be essential to facilitate effectiveness, safety and sustainability.

**Conclusion:** Insights gained through co-design have been critical to the success of developing this new model of support for members of farming communities experiencing depression or low mood.

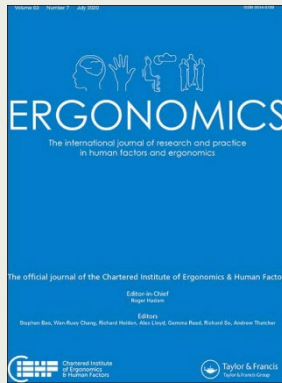
## ¿De qué trata este artículo?

*Diseñar conjuntamente un modelo dirigido por pares para ofrecer activación conductual a personas que viven con depresión o un estado de ánimo bajo en comunidades agrícolas de Australia*

Los agricultores se exponen a riesgos para su salud mental, sin embargo, cuentan con ayuda limitada. El objetivo de este estudio era ofrecer activación conductual a los agricultores, una terapia para trabajadores afectados por depresión o bajo ánimo. Se realizó un estudio cualitativo con 10 grupos y 22 participantes, con una duración de 3 meses. Los temas tratados fueron cuatro y todos relacionados con el apoyo a la salud mental. Se concluyó que la activación conductual fue un buen modelo de apoyo para estos trabajadores.

<b>AUTORES</b>	<i>Alison J. Kennedy, Kate M. Gunn, Sonya Duke, Martin Jones, Ellie Brown, Kelly Barnes, Joanna Macdonald, Susan Brumby, Vincent L. Versace, Richard Gray</i>
<b>DOI</b>	<a href="https://doi.org/10.1111/ajr.12982">https://doi.org/10.1111/ajr.12982</a>
<b>PUBLICACIÓN</b>	<i>The Australian Journal of Rural Health, 2023, Volumen 31, Número 3, pp. 556-568</i>

**TEMÁTICA:** Riesgo salud mental



## ERGONOMICS

### ARTÍCULO 5:

#### **Quantitative and qualitative workload assessment in steep terrain forest operations: fostering a safer work environment through yarder automation**

Many forestry roles have changed from being manual tasks with a high physical workload to being a machine operator task with a high mental workload. Automation can support a decrease in mental fatigue by removing tasks that are repetitive and monotonous for the operators. Cable yarding presents an ideal opportunity for early adoption of automation technology; specifically the carriage movement along a defined corridor. A Valentini V-850 cable yarder was used in an Italian harvesting setting, in order to gauge the ergonomic benefit of carriage control automation. The study showed that automating yarder carriage movements improved the ergonomic situation of the workers directly involved in the related primary tasks. However, the caveat is that improving one work task may negatively affect the other work tasks, and therefore introducing automation to a worksite must be done after considering all impacts on the whole system.

## ¿De qué trata este artículo?

*Evaluación cuantitativa y cualitativa de la carga de trabajo en operaciones forestales en terrenos escarpados: fomentando un entorno de trabajo más seguro mediante la automatización de grúas de arrastre*

En el ámbito forestal numerosas tareas se realizan de forma manual, lo que engloba una gran carga física. Con la automatización de algunas tareas, los trabajadores pasan a ser operadores de máquinas, por lo que predomina la carga mental. Sin embargo, la automatización también puede contribuir a una disminución de la carga mental debido a que desaparecen las labores más monótonas o repetitivas. En una cosecha de Italia se automatizaron los movimientos de un carro de grúa de arrastre. Esto contribuyó a una mejora de la ergonomía de los trabajadores durante las tareas relacionadas. Antes de automatizar una tarea deben tenerse en cuenta todas las consecuencias que pueda ocasionar.

<b>AUTORES</b>	<i>Giovanna Ottaviani Aalmo, Raffaele Spinelli, Natascia Magagnotti, Rien Visser</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/00140139.2022.2123562">https://doi.org/10.1080/00140139.2022.2123562</a></i>
<b>PUBLICACIÓN</b>	<i>Ergonomics, 2023, Volumen 66, Número 6, pp. 717-729</i>

**TEMÁTICA:** Vehículos y maquinaria agrícola



## ARTÍCULO 6:

### **The effect of rigid tape on wrist postures during tree planting**

Taping has been suggested to reduce the incidence of tendinopathy in tree planters. However, the ability of taping to reduce wrist postures during planting has not yet been formally evaluated. The primary aim was to test the effect of rigid taping on wrist postures during tree planting tasks. Eleven tree planters planted up to 50 trees in three conditions: no-tape (NT), tape-on-the-dorsum-of-the-hand (T1) and tape-on-the-thumb (T2) in a randomised cross-over, within-participant, repeat-measures design. Electrogoniometers (EG) recorded continuous wrist postures. Digital video recordings were used to segment EG traces of each planting cycle (one planted tree) into 4 kinematically distinct Phases. The tree and shovel wrist were analysed separately. Tree-wrist peak ulnar deviation and frequency of shovel-wrist awkward frontal plane postures were significantly reduced in the T2 condition. Taping may be effective at reducing non-neutral postures and should be researched further to determine its effectiveness in reducing tree planting injuries.

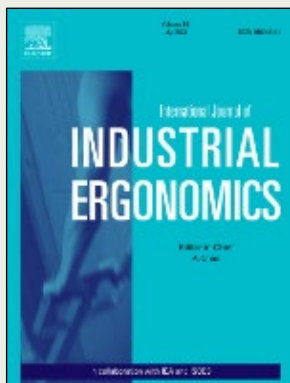
## ¿De qué trata este artículo?

### *El efecto de la cinta rígida en las posturas de las muñecas durante la plantación de árboles*

El objetivo de este estudio fue analizar el uso de cinta adhesiva con propiedades de rigidez en posturas de muñecas durante la plantación de árboles. Participaron once plantadores y plantaron 50 árboles de tres formas: sin cinta, con cinta en el dorso de la mano y con cinta en el pulgar. Se utilizaron electrogoniómetros para registrar posiciones y vídeos. Se concluyó que la utilización de cinta adhesiva podría reducir posturas perjudiciales de la muñeca.

<b>AUTORES</b>	<i>Elizaveta Mojaeva; Mike McAlonan, Alex Scott</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/00140139.2022.2139417">https://doi.org/10.1080/00140139.2022.2139417</a></i>
<b>PUBLICACIÓN</b>	<i>Ergonomics, 2023, Volumen 66, Número 8, pp. 1190-1201</i>

**TEMÁTICA: Riesgo Físico**



## INTERNATIONAL JOURNAL OF INDUSTRIAL ERGONOMICS

### ARTÍCULO 7:

#### **Ergonomic researches in agricultural machinery- a systematic review using the PRISMA method**

The objective of this systematic review was to learn the current state of Ergonomic/human factors researches in agricultural machinery and to draw implications for future efforts. The Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) was selected to conduct this review. The literature search was carried out in Web of Science, Engineering Village, and Science Direct for articles published between 1950 and 2021. After two rounds screening and discussions, 107 studies were identified, and another 16 relevant studies were added after author recommendation and discussion, so there were 123 selected studies for further analysis. According to the objective of each comparative study, they were classified into two categories, studies on human in H-M system and on ergonomic application in design or evaluation, and the summary of extracted data from each study was provided. Based on the review and analysis, some conclusions and further directions were put forward.

## ¿De qué trata este artículo?

*Investigaciones ergonómicas en maquinaria agrícola: una revisión sistemática utilizando el método PRISMA*

Se realizó una revisión sobre las investigaciones disponibles acerca de factores ergonómicos/humanos en máquinas del sector de la agricultura. Se empleó el método PRISMA. Para el proceso de búsqueda se utilizó “Web of Science”, “Engineering Village” y “Science Direct”. Se seleccionaron y analizaron 123 artículos del período de tiempo comprendido entre 1950-2021, que se dividieron en dos categorías y fueron resumidos, exponiendo algunas conclusiones.

<b>AUTORES</b>	<i>Bianbian Qiu, Yongfu Zhang, Hui Shen, Jiping Zhou, Lei Chu</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1016/j.ergon.2023.103446">https://doi.org/10.1016/j.ergon.2023.103446</a></i>
<b>PUBLICACIÓN</b>	<i>International Journal of Industrial Ergonomics, 2023, Volumen 95, 103446</i>

**TEMÁTICA:** Vehículos y maquinaria agrícola

## ARTÍCULO 8:

### **Field measurement of hand forces of palm oil harvesters and evaluating the risk of work-related musculoskeletal disorders (WMSDs) through biomechanical analysis**

Hand force data is critical in evaluating work-related musculoskeletal disorders (WMSDs). Nevertheless, earlier studies on oil palm workers relied on estimated or laboratory measurements, which may not accurately reflect the actual hand forces. This study is the first report on the field measurement of hand forces for palm oil harvesters using a chisel and sickle to harvest low and tall palm trees, respectively. The dynamic hand forces and ground reaction forces were measured using instrumented harvesting tools and force plates, while wearable motion (IMU) and electromyography (EMG) sensors were incorporated for quantifying postural angles and muscle activations, respectively. Additionally, the spinal loadings, continuous Rapid Entire Body Assessment (REBA) scores, and subjective pain scores were determined to evaluate the risk of WMSDs. A total of 10 harvesters were recruited to perform the palm pruning tasks using a chisel and sickle. Resultantly, the sickle and chisel recorded a maximum cutting force of  $1601.23 \pm 424.26$  N and  $420.80 \pm 96.00$  N, respectively. All pruning tasks were found to be highly risky to harvesters, with a peak REBA score of 12. Likewise, all investigated muscles were activated for over 40% MVC, thus inducing moderate pain in the muscles. The peak L5-S1 compression forces for all tasks exceeded the safety threshold ( $>3400$  N), but the values were not significantly different. The shear force of the L5-S1 was extreme in pruning with a sickle ( $1446.10 \pm 411.00$  N) compared to using a chisel. In conclusion, palm harvesters were at a high risk of developing WMSDs following poor postures, high physical exertion and muscle activity, and excessive spinal loads.

## ¿De qué trata este artículo?

*Medición de campo de las fuerzas manuales de los recolectores de aceite de palma y evaluación del riesgo de trastornos musculoesqueléticos relacionados con el trabajo mediante análisis biomecánico*

En este estudio se realizaron mediciones en campo de las fuerzas manuales de recolectores de aceite de palma, empleando herramientas de recolección instrumentadas y placas de fuerza. Además, se utilizaron sensores de movimientos portátiles y electromiografía. Se aplicaron diversos métodos, como por ejemplo REBA (Rapid Entire Body Assessment). Participaron 10 recolectores que utilizaban hoz y cincel durante labores de poda. Los resultados mostraron que estos trabajadores se exponían a un elevado riesgo de sufrir trastornos musculoesqueléticos.

<b>AUTORES</b>	<i>Nadiyah Aqilahwati Abdullah, Mohamad Nazhan Mohamad Shaberi, Muhammad Nor Akmal Nordin, Zaidi Mohd Ripin, Muhammad Fauzinizam Razali, Wan Mohd Amri Wan Mamat Ali, Baharom Awang, Mohamad Ikhwan Zaini Ridzwan</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1016/j.ergon.2023.103468">https://doi.org/10.1016/j.ergon.2023.103468</a></i>
<b>PUBLICACIÓN</b>	<i>International Journal of Industrial Ergonomics, 2023, Volumen 96, 103468</i>

**TEMÁTICA: Riesgo Físico**



## INTERNATIONAL JOURNAL OF OCCUPATIONAL SAFETY AND ERGONOMICS

### ARTÍCULO 9:

#### **Evaluation of occupational health and safety risk factors in Turkish marine fish hatcheries**

In this study, the approaches of employees in marine fish hatcheries to occupational health and safety were determined. Cronbach's  $\alpha$  coefficient was calculated as 0.858 in the reliability of the scale and scale factors based on internal consistency. In addition, factor analysis according to the varimax method was found to be approximately 64%. It was determined that 68% of the employees were not aware of the relevant laws. In addition, 85% of the employees are aware of the dangers and risks in their workplaces. In the event of a negative situation in the workplace, the rate of those who know their legal rights is 73% ( $p \leq 0.05$ ). In addition, 91% of the employees stated that they would use their right to object in a risky situation and quit the job. Sixty per cent of the employees stated that their jobs can satisfy them sociologically and economically throughout their life.

## ¿De qué trata este artículo?

### *Evaluación de factores de riesgo para la seguridad y la salud ocupacional en piscifactorías de Turquía*

Se estudió el conocimiento de los trabajadores de piscifactorías sobre seguridad y salud laboral y se aplicó estadística para la obtención de resultados. El 68% de trabajadores no conocían las leyes correspondientes, el 85% eran conscientes de los riesgos de su trabajo, el 73% conocían sus derechos ante una situación negativa en el trabajo, el 91% negaría la realización del trabajo ante un riesgo y el 60% confirmó que su trabajo podría satisfacer sus necesidades sociológicas y económicas a lo largo de toda su trayectoria.

<b>AUTORES</b>	<i>Selçuk Uyumsal, M. Kürşat Fırat, Şahin Sakab, Cüneyt Suzer, Müge Aliye Hekimoğlu, Hülya Saygı, Meral Türk, Osman Özden, Fatih Perçin, Serhat Engin, Ahmet Çabuk</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/10803548.2022.2057689">https://doi.org/10.1080/10803548.2022.2057689</a></i>
<b>PUBLICACIÓN</b>	<i>International Journal of Occupational Safety and Ergonomics, 2023, Volumen 96, 103468</i>

**TEMÁTICA:** Seguridad y Salud General





## JOURNAL OF AGROMEDICINE

### ARTÍCULO 10:

#### **Agricultural Producers' and Stakeholders' Perceived Effectiveness and Participation in COVID-19 Protective Behaviors**

This study was designed to identify the perceived effectiveness of COVID-19 protective behaviors and participation in COVID-19 protective behaviors among agricultural producers and stakeholders in the Midwest, United States. A questionnaire was disseminated online to agricultural producers and stakeholders in April–July 2020. Respondents (N = 1,876) shared their perceptions of the effectiveness of COVID-19 protective behaviors and participation in those behaviors. Respondents were primarily agricultural producers (85.5%), aged 64 or younger (66.4%), male (81.2%), white (98.3%), and rural residents (88.7%). About three-quarters of respondents thought washing hands with soap and water and covering a cough or sneeze is very effective at preventing the spread of COVID-19, however, only 30% thought wearing a face mask when in contact with others or in public is very effective. Similarly, over 80% reported washing hands with soap regularly every day and covering their cough or sneeze every day in the past two weeks. In contrast, less than 40% reported staying home as much as possible and wearing a face mask when in public every day in the past two weeks. Rural residents were less likely than urban or suburban residents to report wearing a face mask when in public or with people outside their household. Agricultural producers and stakeholders were found to be at risk of getting COVID-19 due to the perceptions and practices, especially those related to protective social measures. Understanding engagement in protective behaviors and perceptions of their effectiveness is critical to developing effective public health interventions for agricultural communities.

## ¿De qué trata este artículo?

### *Percepción de la efectividad y participación en comportamientos de protección ante la COVID-19 de productores agrícolas y partes interesadas*

Se llevó a cabo una investigación en productores agrícolas y partes interesadas con el fin de analizar la efectividad y participación percibidas sobre comportamientos de protección ante la COVID-19. Se realizaron cuestionarios en línea durante abril y julio de 2020, en concreto a 1876 personas, de los cuales el 85,5% eran productores agrícolas. Únicamente el 30% de los participantes consideraba la efectividad de la mascarilla, y tres cuartas partes de ellos percibían como una buena medida lavarse las manos y cubrirse al toser o estornudar, aunque un 80% confirmó que lo hizo todos los días en las dos semanas anteriores. Sin embargo, en ese mismo período de tiempo, un porcentaje menor del 40% solía quedarse en casa el máximo tiempo posible y emplear mascarilla. Se concluyó que los productores agrícolas y partes interesadas sufrían riesgo de contraer esta enfermedad debido a las medidas adoptadas.

<b>AUTORES</b>	<i>Josie M. Rudolphi, Courtney Cuthbertson, Amandeep Kaur, Jesus Natividad Sarol Jr.</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2022.2142347">https://doi.org/10.1080/1059924X.2022.2142347</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 2, pp. 105-115</i>

**TEMÁTICA: Accidentes y Enfermedades Laborales**

## ARTÍCULO 11:

### **Real-time COVID-19 Education to Reduce Workplace Risks: Thematic Analysis of a COVID-19 Agricultural Employer Webinar Series**

**Objectives:** California’s agricultural industry, an “essential industry” during the COVID-19 pandemic, required support to understand and implement changing public health knowledge and regulations in the workplace. The Western Center for Agricultural Health and Safety (WCAHS) transitioned from traditional in-person trainings with agricultural stakeholders to remote engagement, such as webinars. We aimed to assess the use of real-time webinar trainings and identify agricultural employer concerns about reducing the risk of COVID-19 in the workplace.

**Methods:** We conducted a thematic analysis of webinar chat from WCAHS’ “Reduce the Risk of COVID-19 in Your Workplace” monthly webinar series held from December 2020–May 2021. De-identified chat transcripts were analyzed using a deductive approach to assess participant concerns as they related to prevention and response actions, employer responsibilities, and evolving public health knowledge. Codes were identified by an iterative process using semantic interpretation and summarized into four major themes.

**Results:** Our analysis reveals participants’ concerns relating to (1) prevention of COVID-19 in the workplace, (2) response to COVID-19 in the workplace, (3) employer concerns, and (4) evolving, real-time knowledge. Participants shared multiple, overlapping concerns. Many also asked for information tailored to specific scenarios in their workplace.

**Conclusion:** Providing industry-specific guidance and examples in an accessible means is critical for supporting agricultural employers and their highly vulnerable workers. Virtual trainings will likely continue to be an effective means of outreach with the agricultural industry. Future outreach and education efforts should consider virtual engagement and opportunities to document experiences amid changing work environments, social cultures, and learning activities.

## ¿De qué trata este artículo?

*Educación sobre COVID-19 en tiempo real para reducir los riesgos en el lugar de trabajo: análisis temático de una serie de seminarios web para trabajadores agrícolas sobre COVID-19*

Se analizó el uso de seminarios online en tiempo real sobre COVID-19 y se identificaron las preocupaciones de empleadores del sector agrícola en California acerca de los riesgos relacionados con esta enfermedad en su trabajo. Se realizó un análisis por temas utilizando el chat de los seminarios mensuales denominados “Reduzca el riesgo de COVID-19 en su lugar de trabajo”, llevado a cabo desde diciembre de 2020 a mayo de 2021. Los participantes mostraron diferentes preocupaciones y solicitaron información específica para su lugar de trabajo. Se concluyó que orientar y facilitar ejemplos determinados de este sector es imprescindible para ayudar tanto a empleadores como a trabajadores. Las formaciones virtuales se consideran un buen medio para el sector de la agricultura.

<b>AUTORES</b>	<i>Caitlin G. Jones, Yajaira Ramirez Sigala, Teresa Andrews, Heather E. Riden</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2022.2112418">https://doi.org/10.1080/1059924X.2022.2112418</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 2, pp. 116-126</i>

**TEMÁTICA: Accidentes y Enfermedades Laborales**

## ARTÍCULO 12:

### **A Needs Assessment of Ohio Farmers' Self-Reported Health Behaviors**

The study purpose was a needs assessment, to identify and quantify health behavior risk-factors of Ohio farmers in sleep, mental health, fruit/vegetable serving frequency, physical activity, tobacco, alcohol and illicit drug use, and weight status. Guided by the RE-AIM implementation framework, the research question was What behavioral choices pose health risk factors for Ohio farmers? This cross-sectional, quantitative, descriptive study used Qualtrics' hyperlinks, QR codes, or paper-and-pencil surveys to collect data on seven focused health behaviors. The survey combined valid and reliable public domain questionnaires. The target audience included Ohio farmers representing various commodities. Extension educators at the county, regional, and state level provided access and data collection during their existing community-based programs and annual pesticide training sessions. The survey has been opened from January 20, 2020 to December 5, 2020 with modified recruitment during COVID. A convenience sample of 505 farmers participated. The majority self-identified as male, married, white, non-Latino, and worked full-time. The most frequent commodity was field crops. Most farmers reported 7-to-8 h of sleep, but the MOS SLP6 subscale indicated 89.5% of the farmers reported a score greater than 51. The two PHQ-2 questions showed 9.6% of the farmers scored >3, indicating a likely major depression disorder. Fruit and vegetable serving frequency appeared less than dietary recommendations. Time spent in physical activity did not meet guidelines. Almost 80% of the farmers said they did not use tobacco; the most common choice was chews and snuffs. Audit-C showed 31.4% of the men and 27.7% of the women can be categorized as hazardous drinkers. Illicit drug use was reported by 3.7%. Most farmers were obese or overweight. Male respondents were 83.5% overweight or obese; females 70.8% were overweight or obese. Males ages 55–64 years were mostly likely to be obese (58%) followed by males ages 35–44 years (46%). Results were compared to Ohio's Behavioral Risk Factor Surveillance System. These data will assist county Extension educators in identifying health prevention programming important for farm populations, utilizing community resources and services. While the findings of Ohio farmers may not be generalizable to other state farming communities, this survey and lessons learned can serve as a model for other Extension assessments.

## ¿De qué trata este artículo?

*Una evaluación de las necesidades de los comportamientos de salud autoinformados por los agricultores de Ohio*

Se estudiaron los comportamientos (sueño, salud mental, consumo de frutas y verduras, actividad física, peso y consumo de tabaco alcohol y drogas) que podían suponer un factor de riesgo para la salud de trabajadores de agricultura en Ohio. Se recogió información sobre estos comportamientos de salud mediante el uso de códigos QR, hipervínculos y encuestas con papel y lápiz. Participaron 505 agricultores y los cultivos extensivos fueron los más frecuentes. Se obtuvieron diversos resultados como: media de 7 a 8 horas de descanso en la mayor parte de los trabajadores, problemas como depresión en algunos participantes, consumo de frutas y verduras y actividad física menor que las recomendaciones existentes, casi un 80% de los trabajadores no consumían tabaco, mayoría de trabajadores con sobrepeso, un 31,4% de hombres y un 27,7% de mujeres consumían demasiado alcohol y un 3,7% de trabajadores indicaron consumo de drogas. Se deben llevar a cabo programas preventivos para los agricultores.

<b>AUTORES</b>	<i>Jill F. Kilanowski, S. Dee Jepsen, Emilee A. Drerup, Patricia Brinkman, Sonia Duffy</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2022.2040072">https://doi.org/10.1080/1059924X.2022.2040072</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 2, pp. 136-150</i>

**TEMÁTICA:** Seguridad y Salud General

## ARTÍCULO 13:

### **Psychological Morbidity in the Farming Community: A Literature Review**

The mental health of the farming community across industrialised nations has long been a major concern. Using an adapted procedure for a systematic literature review of observational epidemiological studies reporting prevalence (informed by the Joanna Briggs Institute method), this paper reviews peer-reviewed literature that explicitly compares farmer and non-farmer mental health (n = 48). In doing so, it provides a central and accessible evidence base for researchers and practitioners, and simultaneously reveals a stark lack of consensus; specifically, 54.0% of measures deployed to assess farmer mental health determined it to be the same as or even better than non-farming populations. This ambiguity sits in sharp contrast to the unequivocally worrisome farmer suicide statistics. Informed by the literature, the paper discusses potential reasons for this mismatch, including (i) farmers' progression through a different "pathway" to suicide that is not always preceded by mental illness, and (ii) a failure of current methods to accurately gauge the mental health status of farmers. The paper concludes by recommending more research into farmers' "pathway" to suicide, and highlights the need for a dedicated and multi-disciplinary programme of methods research that will afford a more culturally appropriate and effective means of understanding mental health in the farming community.

## ¿De qué trata este artículo?

### *Morbilidad psicológica en la comunidad agrícola: una revisión de la literatura*

Se lleva a cabo una revisión de la literatura en la que se incluyen 48 estudios revisados por pares que comparan la salud mental de agricultores y no agricultores. Se observó que el 54% de las medias adoptadas para la evaluación de la salud mental de los agricultores indicaron que esta era igual o mejor que para los que no eran de este sector. Esto no coincide con la preocupante estadística de suicidio de agricultores. El trabajo identifica las razones que podrían llevar a este desajuste como podrían ser que el suicidio no haya estado precedido por enfermedades mentales o que los métodos adoptados para estudiar la salud mental de los agricultores hayan fallado.

<b>AUTORES</b>	<i>Hannah Chiswell</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2022.2089419">https://doi.org/10.1080/1059924X.2022.2089419</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 2, pp. 151-176</i>

**TEMÁTICA: Riesgo Salud Mental**



## ARTÍCULO 14:

### Organizational Resources and Social Support Influences on Stress and Depression: A Comparison among Cooperative and Non-Cooperative Farmers

**Background:** Farmers are disproportionately affected by depression and suicide. Social connectedness has been shown to reduce depression and suicide among the general population but its impact on farmers is less well-known. Our previous research indicated that farmers who had cooperative resources and social support reported decreased symptoms of depression. However, it was unclear whether farmers who were not cooperative members or utilized resources from non-cooperative organizations differed from cooperative farmers in mental health.

**Methods:** A survey consisted of online self-completion and phone interviews was conducted among 307 participants (197 co-op, 110 non-co-op) to examine whether Midwest (north central United States) cooperative and non-cooperative farmers differ in perceived stress and symptoms of depression and whether potential differences were impacted by program use, program satisfaction, and social support.

**Results:** Cooperative farmers reported lower perceived stress and symptoms of depression than non-cooperative farmers and the difference was statistically significant for perceived stress. Use of educational programs, such as training and mentorship, was associated with decreased perceived stress but not symptoms of depression. Satisfaction with programs and social support were associated with decreased perceived stress and symptoms of depression. Program satisfaction was observed to have more associations with decreased perceived stress and symptoms of depression than program use.

**Conclusions:** Results reveal that organizational resources and social support can mitigate mental health risks among farmers. This study highlighted an opportunity for future investigation of social connectedness in addressing farmers' mental health.

## ¿De qué trata este artículo?

*Influencia de los recursos organizacionales y el apoyo social sobre el estrés y la depresión: una comparación entre agricultores pertenecientes a una agrupación y agricultores individuales*

La depresión o el suicidio son problemas importantes que aparecen en el sector de la agricultura. En investigaciones previas se determinó una disminución de síntomas depresivos en agricultores que contaban con recursos cooperativos y apoyo social, pero no se identificó si existían diferencias en cuanto a salud mental entre estos agricultores y los que no pertenecían a una agrupación. En este estudio se realizaron encuestas online y por teléfono a 307 participantes, de los cuales 110 no formaban parte de ninguna cooperativa. El objetivo era analizar las diferencias entre el estrés y los síntomas depresivos y determinar si estaban influenciadas por programas de formación, satisfacción con éstos y apoyo social. Los resultados mostraron menor estrés y depresión en agricultores con agrupación. La aplicación de programas formativos disminuía solamente el estrés. La satisfacción con éstos y el apoyo social disminuía ambos (estrés y síntomas depresivos). El apoyo social y los recursos organizacionales son herramientas para prevenir los riesgos de salud mental en trabajadores del sector de la agricultura.

<b>AUTORES</b>	<i>Yanni Liang, Carri Casteel, Brandi Janssen, Kai Wang, Diane S. Rohlman</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2022.2134243">https://doi.org/10.1080/1059924X.2022.2134243</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 2, pp. 177-186</i>

**TEMÁTICA: Riesgo Salud Mental**

## ARTÍCULO 15:

### The Effect of Participatory Heat Education on Agricultural Worker Knowledge

**Objectives:** Farmworkers disproportionately experience preventable adverse health effects from heat exposure. We sought to evaluate the effect of participatory heat education on farmworker knowledge. **Methods:** We conducted a parallel, comparison group intervention study to investigate the effectiveness of a Spanish/English participatory, culturally-tailored, heat education-based intervention on farmworker heat knowledge in the Summer 2019. We used convenience sampling to recruit adult outdoor farmworkers from Central/Eastern Washington State, USA. Crews were randomized to receive the intervention (n = 40 participants) versus not receive the intervention (n = 43 participants). We assessed changes in heat knowledge, scored on a scale from 0 to 11, between baseline, immediate post-intervention, and post-season, which was approximately three months after baseline, using the Wilcoxon signed-rank test. We compared differences in knowledge scores from baseline to post-season between groups using analysis of variance. **Results:** Average knowledge scores improved from 4.6 (standard deviation [sd] 1.5) to 6.3 (sd 2.0) pre to post season in the intervention group (p < 0.001). There was a greater improvement in pre-post knowledge scores in the intervention (average difference 1.6, sd 2.0) versus the comparison group (average difference 0.41, sd 1.7) (p = 0.04). **Conclusions:** Participatory heat training was effective in improving farmworker heat knowledge over the course of a summer season. Results of this study will be used to guide heat prevention efforts for farmworkers.

## ¿De qué trata este artículo?

### *El efecto de la educación participativa acerca del calor en el conocimiento de los trabajadores de la agricultura*

El calor al que se exponen los agricultores durante el trabajo deriva en efectos negativos para su salud. Este estudio analizó si la formación sobre calor proporcionaría nuevos conocimientos al personal de este sector. Se realizó un estudio con grupos de comparación y se investigó el éxito de una intervención participativa en español/inglés acerca del calor en trabajadores durante el verano de 2019. Participaron agricultores adultos que trabajaban al aire libre y se asignaron los grupos al azar, uno de ellos recibió la intervención (40 participantes) y el otro no (43 participantes). Se analizaron los cambios en el conocimiento sobre este tema, puntuando con una escala de 0 a 11, y se comparó entre el inicio de la intervención, inmediatamente después de su realización y tres meses después del inicio (posttemporada), empleando análisis de varianza. Los resultados mostraron un incremento en la puntuación de 4,8 (al inicio) y 6,3 (después de la temporada) con el grupo de intervención. Se determinó una mejora más significativa en las puntuaciones antes y después de la intervención que en el grupo de comparación. La formación fue útil para aumentar el conocimiento sobre calor en el trabajo del sector de la agricultura.

<b>AUTORES</b>	<i>Diana Marquez, Jennifer E. Krenz, Érica Chavez Santos, Elizabeth Torres, Pablo Palmández, Paul D. Sampson, Maria Blancas, Jose Carmona, June T. Spector</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2022.2058667">https://doi.org/10.1080/1059924X.2022.2058667</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 2, pp. 187-198</i>

**TEMÁTICA:** Temperatura

## ARTÍCULO 16:

### **Agricultural Safety and Health Curriculum: Preparing the Next Generation of Rural Nurses**

The purpose of this study is to examine the impact of including/expanding agricultural health and safety curriculum in a prelicensure baccalaureate of nursing program on the nursing students' knowledge of agricultural health and safety. A convenience sample of baccalaureate nursing students in their first year of nursing school on two different campuses of a Midwestern college of nursing. Agricultural health and safety content was introduced with pre- and post-surveys completed after delivery of the agricultural health and safety education unit. Independent T-test ( $p < .05$ ) performed on pre ( $n = 135$ ) and post surveys ( $n = 109$ ). There were no significant differences between baseline data on the two campus sites or between genders. There were statistically significant differences between baseline and post levels of knowledge, with an increase in perceived knowledge. Students "raised on a farm" or "that worked on a farm" and students "not raised on a farm" or "didn't work on a farm" had significantly different knowledge levels at baseline, and all groups had a statistically significant change in knowledge, but no significant posttest difference between groups. Incorporation of agricultural health and safety into a Bachelor of Science Nursing program can lead to significant knowledge increase and better prepare student nurses to provide care to patients with agricultural-related injuries and health concerns.

## ¿De qué trata este artículo?

*Plan de estudios de seguridad y salud agrícola: preparación de la próxima generación de personal de enfermería rural*

Se investigaron los resultados de incluir en la licenciatura de enfermería contenidos sobre seguridad y salud en agricultura. Participaron estudiantes de dos campus universitarios diferentes, que estaban en primer curso. Antes y después de proporcionar al alumnado la unidad con estos contenidos se realizaron encuestas. Se determinó un aumento del conocimiento sobre este tema entre los encuestados. Además, al comenzar la investigación había diferencias en el conocimiento entre estudiantes que trabajaban o que habían crecido en el ámbito de la agricultura y los que no tenían relación con éste. Sin embargo, no se encontraron estas diferencias después de tratar los contenidos. Por tanto, se concluyó que la formación sobre seguridad y salud en agricultura en esta titulación puede aumentar el conocimiento de los estudiantes y que estos futuros profesionales estén más preparados para atender a agricultores con enfermedades o lesiones.

<b>AUTORES</b>	<i>Sue A. Schuelke, Michelle E. Ellermeier</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2022.2058665">https://doi.org/10.1080/1059924X.2022.2058665</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 2, pp. 208-213</i>

**TEMÁTICA: Atención Sanitaria**

## ARTÍCULO 17:

### Agricultural Injuries: Risk Factors and Severity by Affected Body Part among US (Midwest) Farmers

**Objectives:** Statistics from the United States Bureau of Labor Statistics indicate that agriculture consistently ranks as the most hazardous industry in the US. To identify specific targets for prevention, we investigated injury risk factor profiles separately for each injured body site. We also characterized the severity of agricultural injuries by injured body site using the type of medical care and lost work time due to injury.

**Methods:** We used the Central States Center for Agricultural Safety and Health (CS-CASH) surveillance data for 2018 to perform descriptive statistics and regression modeling.

**Results:** We found that 12% (513/4351) of the participants experienced one or more injuries in the previous 12 months. Compared to female operators, male operators had 3.53 (95% CI: 1.17–10.68) times higher odds of back injury. Operators in livestock production had 2.77 times (95% CI:1.12–6.82), 2.28 times (95% CI:1.25–4.14), and 1.69 times (95% CI:1.10–2.59) higher odds of injury to the chest/trunk, finger, and leg/knee/hip, respectively, compared to operators in crop or mixed production. After adjusting for age and gender, operators who worked full time (vs. part-time) on the farm/ranch had 2.11 times (95% CI:1.03–4.34) higher odds of back injury. Arm/shoulder and leg/knee/hip injuries were more frequent in older age groups.

**Conclusions:** Prevention measures should be tailored considering specifically livestock producers with emphasis on trainings on proper livestock handling, such as being gentle, establishing routine, keeping distance, and avoiding sudden and loud noise when handling animals. Applying these techniques avoid startling the animals and reduce the risk of injuries.

## ¿De qué trata este artículo?

*Lesiones agrícolas: factores de riesgo y gravedad de las partes del cuerpo afectadas entre agricultores de Estados Unidos (Medio Oeste)*

Se analizaron los factores de riesgo de lesiones de diferentes partes del cuerpo en trabajadores del sector de la agricultura. Además, se determinó su gravedad en función de la atención médica recibida y del tiempo sin trabajar a causa de la lesión. Se aplicó estadística y modelos de regresión en datos obtenidos del “Central States Center for Agricultural Safety and Health” de 2018. Los resultados mostraron que el 12% de los participantes habían sufrido alguna lesión en los 12 meses previos, que los hombres tenían más probabilidad de padecer problemas de espalda y que los trabajadores de ganadería eran más propensos a lesiones en el pecho, tronco, dedo, pierna, rodilla y cadera que los que se dedicaban a la agricultura o a ambas cosas. Por otra parte, personas trabajadoras a tiempo completo tenían más probabilidad de dañar su espalda. Las dolencias en brazo, hombro, pierna, rodilla y cadera eran más habituales en las edades más altas. Se concluyó la necesidad de aplicar medidas preventivas, dando especial importancia a los trabajadores de la ganadería.

<b>AUTORES</b>	<i>Balkissa S Ouattara, Cheryl L Beseler, Risto H Rautiainen</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2022.2089421">https://doi.org/10.1080/1059924X.2022.2089421</a></i>
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**TEMÁTICA: Riesgo Físico**



## ARTÍCULO 18:

### **Worker versus Employer Perspectives on Safety in the Forestry Services Industry**

Forestry services work presents high risk for injury, illness, and fatality. How worker and employer views of workplace safety compare influences the strategies to address hazardous working conditions. Interviews with forestry services workers and employers revealed themes about occupational hazards and ways to prevent work-related injury. Workers identified hazards related to the social and natural environments, and injury prevention solutions focused on interventions beyond their control and based on employer responsibility. Employers characterized hazards within job task contexts and tied solutions to worker behaviors to improve job task performance. Discordance between worker and employer reports indicates inconsistent views about what safety measures should be provided and pursued to effectively reduce injury risk. Because many workers in the forest services industry are marginalized due to their immigrant documentation status and being racially/ethnically minoritized, power differentials between workers and employers can also influence how workplace safety and health measures are determined and implemented.

## ¿De qué trata este artículo?

### *Perspectivas de trabajadores frente a las de jefes sobre la seguridad en la industria de servicios forestales*

Los trabajadores forestales se exponen a riesgos de enfermedades, lesiones y muerte. Se realizaron entrevistas a trabajadores y jefes pertenecientes a este sector para conocer los riesgos laborales y las medidas para prevenirlos. Los trabajadores indicaron riesgos relacionados con los entornos sociales y naturales. La prevención de lesiones la asignaban a los jefes. Éstos, sin embargo, englobaron los peligros en las labores y establecieron como prevención el comportamiento de los trabajadores, con el fin de mejorar el desarrollo de las tareas. La diferencia de opiniones entre trabajadores y jefes no aclaraba las medidas necesarias para reducir riesgos.

<b>AUTORES</b>	<i>A. B. de Castro, Carl Wilmsen, Sara Post, Marcy J. Harrington, Diane Bush</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2022.2089422">https://doi.org/10.1080/1059924X.2022.2089422</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 2, pp. 224-229</i>

**TEMÁTICA: Accidentes y Enfermedades Laborales**

## ARTÍCULO 19:

### **Assessing Self-reported Occupational Hazards of Manure Applicators in the Upper Midwest**

Manure management on farms presents potential risks to human health and safety, including infectious, chemical, and physical exposures that may result in injury or fatality. Toxic gases and confined spaces are among the most common hazards. These hazards are especially salient for the Upper Midwest of the United States. This study characterizes the occupational health and safety practices and experiences of manure applicators in Minnesota. This cross-sectional study surveyed 162 commercial manure applicators about their work characteristics, safety practices, and health and safety experiences. Respondents reported an average of 17 hours per day applying manure during the busy season, which typically occurs several weeks each year. One hundred and thirty-one (90%) of 145 respondents did not regularly use gas monitors during application. Thirty-three (37%) of 90 respondents reported at least one symptom of gas exposure during manure application work. Those that worked with swine manure were more likely to report symptoms of gas exposure than those who did not work with swine (OR 9.5; CI: 2.0, 89.0). Those that had entered confined spaces were more likely to report symptoms of gas exposure than those who had not entered confined spaces (OR 4.4; CI: 0.1, 1.1). Fourteen (9%) of 150 respondents reported being injured when applying manure. Manure work can be hazardous and may be associated with injury and gas exposure. These findings offer a starting point for future research and intervention to protect and improve the health and safety of applicators.

## ¿De qué trata este artículo?

*Evaluación de los riesgos laborales autoinformados de los trabajadores que aplican estiércol en el Medio Oeste superior*

La manipulación de estiércol en granjas supone riesgos de seguridad y salud. En este trabajo se realizó una encuesta a 162 trabajadores de este ámbito acerca de sus características laborales, prácticas de seguridad y experiencias en seguridad y salud. Los operarios dedicaban 17 horas al día a la aplicación de estiércol durante algunas semanas al año (temporada alta). Un 90% de ellos no empleaban de forma regular monitores de gas en la aplicación, un 37% indicaron algún síntoma de exposición al gas, siendo más frecuente este síntoma en las personas que trabajaban con estiércol de cerdos y en las que habían entrado en espacios confinados. Un 9% habían sufrido lesiones durante este trabajo.

<b>AUTORES</b>	<i>Devon Charlier, Melissa Wilson, Chryseis Modderman, Erin Cortus, Kevin Janni, Carol Peterson, Megan Schossow, Bruce H. Alexander, Jeff B. Bender</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2022.2089423">https://doi.org/10.1080/1059924X.2022.2089423</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 2, pp. 230-238</i>

**TEMÁTICA:** Exposición

## ARTÍCULO 20:

### **Towards a Better Understanding of Farm Fatalities: Identification and Estimation of Farming Fatality Rates**

**Objective:** Occupational fatality rates are useful in communicating key safety challenges associated with different industries or affecting different populations within those industries. Though seemingly intuitive, the calculation and use of fatality rates associated with farming needs to be carefully considered. This paper highlights difficulties and variability in Farm Fatality Rate (FFR) measures, proposes a series of rates appropriate for assessments of farm safety, and demonstrates their usage through an analysis of farm workplace deaths in Ireland between 2008 and 2016.

**Methods:** Six FFRs are calculated including: the Farm Household Rate (FHR); Farm Operator Rate (FOR); Family Worker Rate (FWR), Worker Rate (WR), Seasonal Fatality Rate (SFR) and, Enterprise Fatality Rate (EFR). To assess trends over time we calculate the rate using appropriate numerators and denominators in three sub-periods.

**Results:** FFRs vary considerably depending on which numerator and denominator are deployed. Over the period, the FHR, FOR, and FWR increased due to growth in the number of fatalities and a slight decrease in the denominator populations. The WR has declined substantially over the full period. The QFR increased substantially for Q2–Q4 whilst the EFR highlights workers on dairy or beef enterprises being particularly at risk.

**Conclusion:** The characteristics of farm workforces present many challenges to the calculation of occupational fatality rates. We propose six alternatives that provide insights into the risks faced by farm households, farm operators, farm workers, seasonally and by type of farm enterprise. We recommend that, regardless of the rate used, the limitations associated with all fatality rates are clearly explained, particularly when engaging with media and occupational health and safety stakeholders.

## ¿De qué trata este artículo?

*Hacia una mejor comprensión de las fatalidades agrícolas: identificación y estimación de las tasas de letalidad en agricultura*

Este estudio resalta las dificultades y la variabilidad en las medidas de la tasa de mortalidad agrícola, propone diversas tasas para evaluar la seguridad en la agricultura y demuestra su utilización mediante un análisis de las muertes laborales en agricultura entre 2008 y 2016 en Irlanda. Se emplean seis tasas diferentes de mortalidad agrícola: tasa de hogares agrícolas, tasa de operador agrícola, tasa de trabajadores familiares, tasa de trabajadores, tasa de letalidad estacional y tasa de letalidad empresarial. Se obtuvieron diversos resultados, como por ejemplo que la tasa de trabajadores había disminuido durante todo el período de tiempo calculado o como que la tasa de letalidad empresarial indicaba que los trabajadores de empresas de carne de vacuno o lácteas estaban en riesgo.

<b>AUTORES</b>	<i>David Meredith, Mohammad Mohammadrezaei, John McNamara, Denis O'Hora</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2022.2113196">https://doi.org/10.1080/1059924X.2022.2113196</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 2, pp. 239-253</i>

**TEMÁTICA:** Seguridad y Salud General

## ARTÍCULO 21:

### **A Systematic Review of Youth and All-Terrain Vehicles Safety in Agriculture**

All-terrain vehicle (ATV) incidents are one of the leading causes of injuries and fatalities among youth in the agricultural industry. It has been hypothesized that many youth-related ATV incidents occur because children ride ATVs that do not fit their capabilities and are not following basic safe riding practices. In addition, various ATV safety guidelines regarding youth (e.g., CPSC, ANSI/SVIA, ASI) are inconsistent and may not align with state or local laws. To the best of our knowledge, no comprehensive studies have compared the physical and mental requirements for riding ATVs and the youth's capabilities to ride ATVs safely. Consequently, there are no scientific-based recommendations for age limitation, physical and mental capabilities, and safety requirements for youth to ride ATVs safely. Thus, there is a need to review the available sources related to youth safety and ATVs in the agricultural industry, identify the research voids, and recommend modifications to current ATV guidelines. This study conducted a systematic review of available ATV-related studies, standards, guidelines, and laws to establish better-informed minimum age, physical and mental capabilities, and safety requirements for youths to ride ATVs on the farm.

## ¿De qué trata este artículo?

*Una revisión sistemática de la seguridad de los jóvenes y los vehículos todo terreno en la agricultura*

En el sector de la agricultura son muy comunes las lesiones y muertes de trabajadores jóvenes provocadas por incidentes con vehículos todo terreno. Se expone la hipótesis de que estos vehículos no se adaptan a las capacidades de los jóvenes y que éstos no realizan una conducción segura. No hay estudios que tengan en cuenta los requisitos mentales o físicos necesarios para conducir estos vehículos y las capacidades de estos trabajadores de corta edad para llevarlo a cabo con seguridad. En esta investigación se realizó una revisión de la bibliografía con el fin de establecer una limitación de edad, unas capacidades físicas y mentales y las mejores prácticas de seguridad para que los jóvenes conduzcan estos vehículos.

<b>AUTORES</b>	<i>Farzaneh Khorsandi, Guilherme De Moura Araujo, Fadi Fathallah</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2022.2155747">https://doi.org/10.1080/1059924X.2022.2155747</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 2, pp. 254-276</i>

**TEMÁTICA:** Vehículos y Maquinaria Agrícola



## ARTÍCULO 22:

### **Beyond Age and Cause: A Multidimensional Characterization of Fatal Farm Injuries in Ireland**

The study seeks to enhance understanding of the complex nature of fatal farm injuries and thereby support the development of targeted safety messages or interventions. The research analyses fatal farm injuries surveillance data collected by the Health and Safety Authority (Ireland) for the period 2004–2018. Utilizing Non-Linear Canonical Correlation Analysis (NLCCA) to identify similarities and differences between 274 fatal injuries, multiple interactions and correlations between two sets of variables were identified. The analysis identified two major patterns of injury. The first relates to older farmers (60+) who were killed due to being struck by an object in motion, i.e. a tractor or machine. These injuries occurred mainly during the summer or winter between 13:00 and 18:00 in the Southern-Eastern regions. The second pattern also relates to older farmers, however these fatalities are associated with beef production and the primary cause of injury was being kicked or crushed by livestock. These injuries commonly occur in the Border, Midland, and Western regions where fatalities are prevalent during spring and outside of normal working hours. Assessing interactions between variables demonstrates to whom, how, when, and where fatal injuries affect different groups within the farm population. These findings provide regulators and farm safety stakeholders with key insights into background characteristics of fatal injuries including type of enterprise, time of day, season, and regional location that should be used to develop safety awareness, training, and targeted interventions to at-risk populations.

## ¿De qué trata este artículo?

*Más allá de la edad y la causa: una caracterización multidimensional de las lesiones mortales en granjas en Irlanda*

En este estudio se analizaron los datos sobre lesiones mortales en granjas, recogidos por la autoridad de seguridad y salud de Irlanda entre los años 2004 y 2018. Se utilizó una técnica estadística con el fin de establecer si existía o no relación entre 274 lesiones de este tipo. Se obtuvieron dos casos principales de lesiones mortales: agricultores con más de 60 años que se golpearon con un tractor o una máquina y agricultores, también de edad avanzada, que sufrieron aplastamientos o patadas del ganado. En este estudio no solamente se determinó quiénes y cómo sufrieron estas lesiones, sino también cuándo y dónde. Esta información debería emplearse para desarrollar formaciones o intervenciones de trabajadores expuestos a riesgos.

<b>AUTORES</b>	<i>Mohammad Mohammadrezaei, David Meredith, John McNamara</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2022.2116138">https://doi.org/10.1080/1059924X.2022.2116138</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 2, pp. 277-287</i>

**TEMÁTICA:** Accidentes y Enfermedades Laborales

## ARTÍCULO 23:

### **Knowledge, Attitudes, and Practices of Finnish Dairy Farmers on Cryptosporidiosis**

Calf-mediated zoonotic cryptosporidiosis is an emerging occupational health risk among Finnish dairy farmers. We studied farmers' knowledge, attitudes, and practices (KAP) regarding cryptosporidiosis to reveal possible weaknesses, which might increase the risk of zoonotic infection. KAP study was carried out as a cross-sectional questionnaire survey (n = 243). A total of 400 cryptosporidiosis-negative and 138 cryptosporidiosis-positive dairy farms, with more than 50 cows, were invited to participate in the study. The response rate was 45%. Half (49%) of the respondents had adequate knowledge concerning zoonotic cryptosporidiosis. Knowledge score was associated with age ( $p < 0.01$ ), level of education ( $p < 0.01$ ), and cryptosporidiosis status of the farm ( $p < 0.01$ ). Though most respondents had favorable attitudes, one-third (32.5%) had poor zoonotic transmission prevention practices. Use of a personal mobile device was the most common risky practice (90%) performed daily in the cowhouse. Most respondents (93%) reported gaining information about infectious diseases in animals from more than two information sources. Veterinarians were the most mentioned source (n = 228), whereas primary care physicians were among the least common sources (n = 16). Having favorable attitudes towards the prevention of zoonotic cryptosporidiosis was common. However, shortages in knowledge and several risky practices were identified in both cryptosporidiosis positive and negative farms. The role of the occupational health sector should be strengthened in work-related zoonotic disease prevention and may require further education of the personnel. A one-health approach to control zoonotic diseases is recommended.

## ¿De qué trata este artículo?

### *Conocimientos, actitudes y prácticas de los productores lecheros finlandeses sobre la criptosporidiosis*

La criptosporidiosis relacionada con los terneros es un riesgo para la salud de los productores de leche en Finlandia. Se investigaron las actitudes, prácticas y conocimientos de los ganaderos en relación a esta enfermedad. Se realizó un cuestionario a 243 trabajadores de diversas granjas (con más de 50 vacas), obteniendo una tasa de respuesta del 45%. Que el 49% de los participantes poseían conocimientos acerca de esta enfermedad y que un 32,5% no realizaba buenas prácticas para su prevención, fueron algunos de los principales resultados obtenidos. Los participantes indicaron que la información sobre este tipo de enfermedades la recibían frecuentemente por veterinarios y de forma menos habitual por médicos de atención primaria. A pesar de que la actitud de los ganaderos para la prevención de la enfermedad era favorable, faltaba conocimiento sobre el tema y buenas prácticas.

<b>AUTORES</b>	<i>J Suolaniemi, T Autio, J Heikkinen, K Räsänen</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2022.2112417">https://doi.org/10.1080/1059924X.2022.2112417</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 2, pp. 288-299</i>

**TEMÁTICA:** *Accidentes y Enfermedades Laborales*

## ARTÍCULO 24:

### **Airway Symptoms among Farmers in Central Norway. A Comparative Study of Risks. The HUNT Study**

**Objectives:** The objective of this study was to compare the risk of developing respiratory symptoms in farmers and other occupational groups over a period of 11 to 23 years.

**Methods:** The study includes data from questionnaires and interviews in HUNT1-3 in The Trøndelag Health study (HUNT). In all three surveys, farmers can be identified. Two control groups are used. Control group 1 consists of all HUNT participants who are not farmers or fishermen. Control group 2 consists of occupational groups who presumably have low exposure to dust, chemicals or gases, but similar educational status as farmers. The data are analysed in SPSS 25 (IBM, Armonk NY), with use of frequency analyses and multiple binary logistic regressions.

**Results:** Our main finding is that healthy farmers have increased risk of developing respiratory symptoms as wheezing or breathlessness over a period of 11 and 23 years. This increased risk is statistically significant after 11 years of follow-up (HUNT1 to HUNT2), and also after 23 years (HUNT1 to HUNT3). Corresponding results regarding wheezing and breathlessness are found for healthy farmers in HUNT2 after 12 years of follow-up in HUNT3. In a subgroup analysis, we find a highly significant difference in both wheezing and shortness of breath when at work, in believing that the symptoms are caused by work, and in having to change jobs or quit because of breathing problems.

**Conclusion:** Farmers have more respiratory symptoms than controls, and the main symptom is attacks of wheezing or breathlessness. Preventive measures such as ventilation and respiratory protection should be implemented on the farm.

## ¿De qué trata este artículo?

*Síntomas de las vías respiratorias entre los agricultores del centro de Noruega.  
Un estudio comparativo de riesgos. El estudio HUNT*

En esta investigación se comparó el riesgo de sufrir problemas respiratorios en agricultores y otro tipo de trabajadores en un período de 11 a 23 años. Se emplearon encuestas del estudio HUNT y se crearon dos grupos de control (que no eran agricultores). Los resultados mostraron, entre otras cosas, que los agricultores sanos estaban expuestos a un mayor riesgo de síntomas respiratorios. Estos tenían más problemas respiratorios o sibilancias que los grupos de control. Se deberían adoptar medidas de prevención como protección respiratoria o ventilación.

<b>AUTORES</b>	<i>Siri Slåstad, Kristin Von Hirsch Svendsen, Arnulf Langhammer</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2022.2134245">https://doi.org/10.1080/1059924X.2022.2134245</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 2, pp. 300-308</i>

**TEMÁTICA:** Accidentes y Enfermedades Laborales

## ARTÍCULO 25:

### Characterization of Musculoskeletal Injury Risk in Dungeness Crab Fishing

**Objectives:** Commercial Dungeness crab fishermen's manual crab pot handling activities can be done in harsh outdoor working environments at sea and can pose well-known physical risk factors associated with musculoskeletal injury including forceful exertion, repetition and awkward posture. The nonfatal injury rate in this fishing fleet is 3.4 per 1,000 full-time equivalent workers. Two-thirds of self-reported injuries in the fleet were musculoskeletal sprains and strains. To date, no objective biomechanical assessment of musculoskeletal disorder (MSD) risk has been conducted due to the challenging work environment.

**Methods:** The aim of this study was to determine the feasibility of collecting objective biomechanical assessments (i.e., posture and repetition) using inertial measurement unit (IMU) sensors placed on the arms and torso of professional deckhands (n = 7) while at sea, harvesting Dungeness crab. Based on the IMU-measured posture data, fishermen's anthropometry, and crab pot weights, biomechanical loading of the low back and both shoulders was estimated.

**Results:** The IMU sensor data showed that commercial Dungeness crab fishing is highly repetitive and poses awkward postures in the shoulders and back. The estimated static low back compression, shear force, and flexion moment about the shoulders and low back (L5/S1) indicate potential injury risk associated with harvesting crab.

**Conclusion:** The results indicate that objective biomechanical assessment using the IMU sensors is feasible in the commercial fishing environment.

## ¿De qué trata este artículo?

### *Caracterización del riesgo de lesiones musculoesqueléticas en la pesca del cangrejo Dungeness*

Los pescadores que realizan tareas manuales con nasas para la pesca del cangrejo Dungeness están expuestos a trastornos musculoesqueléticos, ya que realizan grandes esfuerzos, movimientos repetitivos y posturas forzadas. Se realizó un estudio biomecánico empleando una unidad de medición inercial. Se ubicaron sensores en los brazos y el torso de 7 trabajadores cuando estaban en el mar recogiendo los cangrejos. También se consideró su antropometría y el peso de las nasas de cangrejos. Los resultados indicaron que este trabajo es repetitivo y provoca la adopción de posturas perjudiciales de espalda y hombros, teniendo como consecuencia la aparición de trastornos musculoesqueléticos.

<b>AUTORES</b>	<i>Jeong Ho Kim, Amelia Vaughan, Laurel Kincl</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2022.2068715">https://doi.org/10.1080/1059924X.2022.2068715</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 2, pp. 309-320</i>

**TEMÁTICA: Riesgo Físico**



## ARTÍCULO 26:

### Occupational Health and Safety in Tanzanian Aquaculture – Emerging Issues

**Objectives:** The Tanzanian aquaculture industry represents great potential for food production and jobs; however, the potential occupational hazards and health risks associated with the sector have not been assessed. The aim of this study was to conduct a scoping analysis of the status of occupational health and safety based on current Tanzanian aquaculture activities, specifically in the fish farming and seaweed farming sectors.

**Methods:** Relevant information for the scoping analysis was obtained through aquaculture site visits and worker observation, interviews with key aquaculture stakeholders, and a review of literature relevant to the Tanzanian aquaculture sector published in scientific communications as well as grey literature.

**Results:** The study shows that the Tanzanian aquaculture industry is still in nascent stages, especially in relation to occupational health and safety despite some well-established isolated operations in the country. The industry is dominated by small-scale fish and seaweed farmers, the majority of whom work in the informal and semi-formal sectors. Tanzanian aquaculture workers are exposed to a number of occupational hazards and their associated health effects have been poorly characterized. Substantial gender disparities exist within the sector, which together with climate change, impact worker health and safety.

**Conclusion:** Future research should focus on characterizing occupational exposures and documenting the associated health effects in Tanzanian aquaculture workers. Standardized methods should be used for this purpose to take into account gender disparities as well as the impact of climate change on occupational health and safety of these vulnerable workers.

## ¿De qué trata este artículo?

### *Seguridad y salud en el trabajo en la acuicultura de Tanzania: cuestiones emergentes*

Se llevó a cabo un estudio de la seguridad y salud de trabajadores de acuicultura en Tanzania, en concreto de la piscicultura y del cultivo de algas. Se realizaron visitas a los puestos de trabajo, se observó a los trabajadores, se realizaron entrevistas a grupos de interés y se revisó bibliografía. La seguridad y salud en este sector todavía no está muy avanzada, estando el personal expuesto a diferentes riesgos laborales. Además, las disparidades de género y el cambio climático afectan a la seguridad y salud de estas personas trabajadoras.

<b>AUTORES</b>	<i>Dorothy Ngajilo, Shahieda Adams, Laurel Kincl, Judith Guernsey, Mohamed F. Jeebhay</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2022.2058139">https://doi.org/10.1080/1059924X.2022.2058139</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 2, pp. 321-333</i>

**TEMÁTICA:** Seguridad y Salud General

## ARTÍCULO 27:

### Lung Health in Farming: A Scoping Review

**Objective:** Lung disease is now recognized as an associated occupational hazard among farming and agricultural communities, however limited research surrounds lung health knowledge within our farming population. It is clear from this limited lack of knowledge that farming practices, perceptions and ideas relating to lung health are yet to be uncovered. This scoping review was conducted to identify what is known about lung health within farming and agricultural communities globally and to map the available evidence relating to lung health and lung health decline within this population. The objectives of this review were (1) focus on available lung health research from a global perspective specific to farming and agriculture relating to occupational lung exposures and (2) consolidate current knowledge, clearly identifying gaps within the literature.

**Methods:** This systematic scoping review of the literature is guided by the Joanna Briggs Institute Methodology framework. There were 22 studies eligible for inclusion within the scoping review, providing an up-to-date review of research conducted on lung health and lung disease in farming occupations.

**Results:** Results were grouped into three categories emerging from included studies: (1) focused on the prevalence of respiratory symptoms/disease within farming and agricultural occupations, (2) measurements of dust and particulate matter and correlating these with respiratory conditions, (3) common respiratory conditions linked to a decline in lung health among farming and agricultural occupations. Results identified no study focused on or referred to lung health, lung health knowledge or lung health awareness as an outcome, with all studies focusing on respiratory symptoms, development of lung disease and the common occupational hazards this population are exposed to.

**Conclusion:** This scoping review demonstrates the lack of literature to specifically map available evidence relating to lung health and farming occupations. Many respiratory symptoms and conditions can arise directly and indirectly from agricultural environments, however many of these cases could be prevented by lung health knowledge within the farming population. The results of this scoping review will be used to inform knowledge, awareness, education, health promotion and future research within this population.

## ¿De qué trata este artículo?

### *Salud pulmonar en la agricultura: una revisión de alcance*

Los trabajadores del sector de la agricultura pueden estar en riesgo de sufrir enfermedades pulmonares. Puesto que no hay mucha información acerca de este tema, se llevó a cabo una revisión cuyos objetivos fueron consultar la investigación existente acerca de salud pulmonar (en agricultura y ganadería) y consolidar el conocimiento actual. Se empleó la metodología del Instituto Joanna Briggs. Se seleccionaron 22 estudios y los resultados obtenidos de éstos se clasificaron en tres categorías: síntomas o enfermedades respiratorias en agricultura, mediciones de polvo y partículas y su relación con enfermedades respiratorias y condiciones respiratorias asociadas con un deterioro de la salud respiratoria. En numerosos casos, los problemas respiratorios en el sector de la agricultura se podrían prevenir mediante el conocimiento sobre este ámbito.

<b>AUTORES</b>	<i>Ciara O' Brien, Liz Kingston, Barry J. Plant, Alice Coffey</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2023.2178573">https://doi.org/10.1080/1059924X.2023.2178573</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 3, pp. 335-345</i>

**TEMÁTICA:** Accidentes y Enfermedades Laborales

## ARTÍCULO 28:

### The Impact of COVID-19 on Farmers' Mental Health: A Case Study of the UK

**Objectives:** In this paper, we use a UK case study to explore how the COVID-19 pandemic affected the mental health (emotional, psychological, social wellbeing) of farmers. We outline the drivers of poor farming mental health, the manifold impacts of the pandemic at a time of policy and environmental change, and identify lessons that can be learned to develop resilience in farming communities against future shocks.

**Methods:** We undertook a survey answered by 207 farmers across the UK, focusing on drivers of poor mental health and the effect of the COVID-19 pandemic. We also conducted 22 in-depth interviews with individuals in England, Scotland and Wales who provide mental health support to farmers. These explored how and why the COVID-19 pandemic affected the mental health of farmers. These interviews were supplemented by 93 survey responses from a similar group of support providers (UK-wide).

**Results:** We found that the pandemic exacerbated underlying drivers of poor mental health and wellbeing in farming communities. 67% of farmers surveyed reported feeling more stressed, 63% felt more anxious, 38% felt more depressed, and 12% felt more suicidal. The primary drivers of poor mental health identified by farmers during the pandemic included decreased social contact and loneliness, issues with the general public on private land, and moving online for social events. Support providers also highlighted relationship and financial issues, illness, and government inspections as drivers of poor mental health. Some farmers, conversely, outlined positive impacts of the pandemic.

**Conclusion:** The COVID-19 pandemic is just one of many potential stressors associated with poor farming mental health and its impacts are likely to be long-lasting and delayed. Multiple stressors affecting farmers at the same time can create a tipping point. Therefore, there is a need for long-term support and ongoing evaluation of the drivers of poor mental health in farming families.

## ¿De qué trata este artículo?

*El impacto de la COVID-19 en la salud mental de los agricultores: un estudio de caso del Reino Unido*

Este estudio analizó cómo la COVID-19 influyó en la salud mental (bienestar psicológico, social y emocional) de los trabajadores del sector de la agricultura. Se describieron los factores que provocaban una salud mental desfavorable, los impactos de la pandemia y los aspectos para hacer frente a futuras crisis. Se llevó a cabo una encuesta a 207 trabajadores de Reino Unido. También se realizaron 22 entrevistas a profesionales de Inglaterra, Gales y Escocia que ofrecían apoyo a la salud mental de los agricultores y otras 93 encuestas a un grupo similar. Algunos resultados mostraron que la pandemia empeoró la salud mental: un 63% de los agricultores tenía mayor estrés, un 63% más ansiedad, un 38% se sentía más deprimido y un 12% manifestaba intención suicida. Los trabajadores indicaban que estas consecuencias se relacionaban con la soledad, menor relación social, etc. Los profesionales de apoyo indicaron problemas financieros, de relaciones, etc. Es importante evaluar la salud mental en este ámbito y brindar apoyo a estos trabajadores.

<b>AUTORES</b>	<i>David Christian Rose, Faye Shortland, Jilly Hall, Paul Hurley, Ruth Little, Caroline Nye, Matt Lobley</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2022.2137616">https://doi.org/10.1080/1059924X.2022.2137616</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 3, pp. 346-364</i>

**TEMÁTICA: Riesgo Salud Mental**

## ARTÍCULO 29:

### **“We All Have a Job to Do in This World, It’s up to Us”: Farmworker and Farmer Mental Health in a Rural US-Mexico Border Region**

Improving mental health outcomes for agricultural populations is dependent on understanding the unique farming related stressors in context of the local culture and community. This study was designed to assess the prevalence of stressors and mental health risks among farmers and farmworkers in a rural, medically underserved US-Mexico border region. Of 135 study respondents, 55.6% (n = 18) farmers had clinical depression symptomatology based on the Center for Epidemiologic Studies depression screening scale (CES-D) and 40.2% (n = 117) farmworkers had stress levels that pose significant mental health risks based on the Migrant Farmworker Stress Inventory. Farmworker females were 2.3 times more likely to have a score of clinical concern. Results provide an understanding of the distinct sources of stress for both farmers and farmworkers and the mental health challenges across the industry. With an understanding that suicide is the third leading cause of injury death in Imperial County and depression associated with an increased risk of suicidality, the agricultural workforce in Imperial County is particularly vulnerable. Local farm organizations, employers, and community organizations can help increase mental health access, acceptability, and availability to achieve greater safety and health in the region’s largest workforce.

## ¿De qué trata este artículo?

*“Todos tenemos un trabajo que hacer en este mundo, depende de nosotros”:  
Salud mental de trabajadores del sector de la agricultura en una región rural  
fronteriza entre Estados Unidos y México*

En este estudio se evaluaron los riesgos de salud mental de trabajadores del sector de la agricultura, en concreto de una zona rural situada entre Estados Unidos y México. Se realizaron encuestas a 135 participantes, de los que un 55,6% tenía síntomas de depresión y el 40,2% mucho estrés. Los resultados identificaron los factores de estrés a los que se enfrentan los trabajadores de este sector y cuáles son los desafíos en cuanto a la salud mental.

<b>AUTORES</b>	<i>Annie J. Keeney, Amy Quandt, Yu Meng, Luis Flores Jr, Daniela Flores, Robyn Garratt, Paola Hernandez, Mercy Villaseñor</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2022.2154298">https://doi.org/10.1080/1059924X.2022.2154298</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 3, pp. 365-377</i>

**TEMÁTICA: Riesgo Salud Mental**



## ARTÍCULO 30:

### **A Self-Help Online Intervention Is Associated with Reduced Distress and Improved Mental Wellbeing in Australian Farmers: The Evaluation and Key Mechanisms of [www.ifarmwell.com.au](http://www.ifarmwell.com.au)**

**Objectives:** Farmers are faced with many stressors, along with numerous barriers to accessing traditional forms of mental health support. The ifarmwell online intervention was co-designed with farmers and is informed by Acceptance and Commitment Therapy to equip farmers with transferable coping strategies, particularly to help them cope with circumstances beyond their control. We aimed to evaluate the effect of ifarmwell on farmers' short- and long-term distress and mental wellbeing. **Methods:** Australian farmers (21–73 years) who registered on [www.ifarmwell.com.au](http://www.ifarmwell.com.au) completed measures at the commencement of module 1 (N = 228), the end of the intervention (N = 77) and 6-months post-intervention (N = 61). Primary outcomes included distress (Kessler Psychological Distress Scale) and mental wellbeing (Mental Health Continuum – Short Form). We also examined the relationship between distress, mental wellbeing, neuroticism (Quickscales-R) and ACT-based psychological mechanisms; psychological inflexibility (Acceptance and Action Questionnaire-II), cognitive fusion (Cognitive Fusion Questionnaire), believability of automatic thoughts (Automatic Thoughts Questionnaire-B), coping via acceptance (4 items from the situational COPE) and mindfulness (Five Facet Mindfulness Questionnaire-Short Form). Secondary outcomes of acceptability (Client Satisfaction Questionnaire-8) and usability (System Usability Scale) were also explored. **Results:** Pre- to post-intervention, farmers' distress decreased and mental wellbeing increased. These effects were maintained at 6-month follow-up. Changes in these outcomes were greatest for participants who entered the intervention with high baseline distress ( $\hat{\beta} = -0.59$ , 95%CI = [-0.70, -0.47]) and low mental wellbeing ( $\hat{\beta} = -0.33$ , 95%CI = [-0.47, -0.19]). Decreases in distress and increases in mental wellbeing were associated with decreases in psychological inflexibility, cognitive fusion, and believability of thoughts, and increases in coping via acceptance and mindfulness. Levels of satisfaction (M = 26.92/32) and usability (M = 84.70/100) were high, and 94.6% of participants said they would recommend ifarmwell to a friend in need of similar advice and tools. **Conclusions:** ifarmwell is an effective and usable intervention that is likely to help farmers reduce their levels of distress and improve their mental wellbeing, by improving their psychological flexibility, ability to focus on the present and accept things beyond their control, as well as by reducing the extent to which they believe unhelpful thoughts.

## ¿De qué trata este artículo?

*Una intervención de autoayuda online se asocia con una reducción del sufrimiento y con la mejora del bienestar mental en los agricultores australianos: la evaluación y los mecanismos clave de [www.ifarmwell.com.au](http://www.ifarmwell.com.au)*

Los agricultores australianos están expuestos a numerosos factores estresantes, pero no cuentan con mucha ayuda asociada a su salud mental. Se llevó a cabo una intervención online, diseñada junto con agricultores, basada en la terapia de aceptación y compromiso, con el fin de proporcionar a los trabajadores de la agricultura estrategias para abordar diferentes situaciones. Los agricultores que participaron en el estudio, se registraron en [www.ifarmwell.com.au](http://www.ifarmwell.com.au) y completaron diferentes aspectos al inicio del primer módulo, al final de la intervención y pasados 6 meses de su finalización. Se examinó el sufrimiento, el bienestar mental, atención plena, etc. Los resultados mostraron una disminución del sufrimiento y una mejora del bienestar mental después de la intervención y pasados 6 meses. Un 94,6% de los trabajadores que participaron aseguraron que recomendarían ifarmwell a compañeros. Se concluyó, que ifarmwell era una buena intervención para reducir el sufrimiento y aumentar el bienestar mental de los agricultores, ya que mejoraba su flexibilidad psicológica, centrarse en el momento actual, aceptar lo que se escapa de su control y reducir los pensamientos sin sentido.

<b>AUTORES</b>	<i>Kate M. Gunn, Gemma Skaczkowski, James Dollman, Andrew D. Vincent, Susan Brumby, Camille E. Short, Deborah Turnbull</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2022.2156642">https://doi.org/10.1080/1059924X.2022.2156642</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 3, pp. 378-392</i>

**TEMÁTICA: Riesgo Salud Mental**

## ARTÍCULO 31:

### Risk Perceptions in Agricultural Aviation

**Background:** Agricultural aircraft operations are an integral part of the agricultural sector. According to the National Agriculture Aviation Association (NAAA), aerial applications are conducted in all 50 states of the U.S. and account for 28% of all treated cropland. A typical application operation consists of an operator (Part 137 certificate holder, permission to apply chemicals to agricultural crops) and one or more pilots. This article explores the risk perceptions of operators (pilots with a Part 137 certificate) and non-operators (pilots without a Part 137 certificate) using data from two industry surveys.

**Methods:** In an effort to explain the differences between risk perceptions of operators and non-operators, a series of regression analyses were conducted controlling for age, work experience, prior encounters with hazards and history of reported injuries. In addition to exploring the aggregated perceptions across all hazards, perceptions of specific hazards were also examined.

**Results:** Data indicate that non-operators perceive hazards as significantly more dangerous than operators. Power lines are perceived as the most hazardous, followed by communication towers and meteorological towers. The regression results indicate that risk perception differences remain even after controlling for differences in age, work experiences, prior hazard encounters and injuries between the two groups.

**Conclusions:** Heterogeneity in risk perceptions within an organization can result in discrepancies over daily decision-making concerning operations. Further research is needed to identify the causal factors behind the observed differences.

## ¿De qué trata este artículo?

### *Percepciones de riesgo en la aviación agrícola*

Se analizaron las percepciones de riesgo de los pilotos de aviación agrícola. Se incluyeron en este estudio pilotos con certificación bajo la Parte 137 de los Reglamentos Federales de Aviación (con permiso para aplicación de productos químicos en cultivos agrícolas) y pilotos sin este certificado. Se emplearon datos de dos encuestas de la industria y se llevaron a cabo análisis de regresión teniendo en cuenta la edad, experiencia laboral, peligros y lesiones. Los resultados mostraron que los pilotos sin certificado percibían peor los peligros que lo pilotos con certificado. Los mayores riesgos son las líneas eléctricas, las torres de comunicación y las meteorológicas.

<b>AUTORES</b>	<i>Nishita Sinha, Eva M. Shipp, Tim W. Struttmann, Stephanie C. Payne, Jeffrey D. Borowiec</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2023.2178570">https://doi.org/10.1080/1059924X.2023.2178570</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 3, pp. 393-400</i>

**TEMÁTICA:** Vehículos y Maquinaria Agrícola

## ARTÍCULO 32:

### **Farmers Supporting Farmers: Livestock Auctions as Spaces to Reconstruct Occupational Community and Counter Mental Health Issues**

Social isolation within agricultural communities is prevalent within the United Kingdom (UK). Along with other social and economic determinants, social isolation is considered to be a contributing factor towards the high rates of mental health issues experienced among people working in agriculture. The livestock auction mart is one of the remaining spaces upon which many livestock farmers rely for consistent social interaction and to experience community, both determinants proven to improve physical and mental health. However, the importance of the social contribution of livestock auction marts to farmer wellbeing appears rarely in associated literature. The aims of this study, therefore, were i) to determine levels of isolation experienced by livestock farmers who attend auction marts and ii) to identify the role of the mart as a system of social support, with an emphasis on the informal support system attendees provide for one another. Findings from 90 qualitative interviews demonstrate that the auction mart is an important social site where occupational community and identity can be produced and reproduced for all attending stakeholders, positively impacting upon mental health and wellbeing. The strength of the occupational community among livestock farmers should be considered as a key element among a basket of options approach in the development of support interventions, and as a pathway to negotiating barriers to both help-seeking behaviors and reaching the hard-to-reach.

## ¿De qué trata este artículo?

*Agricultores que apoyan a los agricultores: subastas de ganado como espacios para reconstruir la comunidad de trabajo y contrarrestar los problemas de salud mental*

El aislamiento social es uno de los factores que contribuye a los problemas de salud mental entre ganaderos del Reino Unido. El mercado de subastas de ganado es un lugar en el que estos trabajadores esperan relacionarse, lo que puede derivar en una mejora de su salud física y mental. Esta investigación se centró en identificar el papel del mercado de subastas como un apoyo social y en analizar el aislamiento de trabajadores en este lugar. Se llevaron a cabo 90 entrevistas cualitativas que determinaron que la asistencia a este lugar podía mejorar la salud mental y bienestar de estos trabajadores.

<b>AUTORES</b>	<i>Caroline Nye, Michael Winter, Matt Lobley</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2023.2176959">https://doi.org/10.1080/1059924X.2023.2176959</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 3, pp. 401-414</i>

**TEMÁTICA: Riesgo Salud Mental**

## ARTÍCULO 33:

### Stressors and Coping Strategies in Rural Farmers: A Qualitative Study

**Objective:** Farmers in rural areas face unique lifestyle stressors which may cause physical and behavioral health issues. Because of external stressors, and often an internal drive to succeed, farmers in rural areas have high rates of prescription drug use, excessive alcohol use, depression, and suicide. These methods of coping may increase prevalence of distress and mental illness in farmers leading to poor health outcomes. Social norms within rural farming populations are influenced by culture, family, friends, and community beliefs which make it difficult to conduct research about substance use and mental health. The purpose of this study is to identify stressors in rural farmers and positive and negative coping strategies for stress in the farming population.

**Methods:** In-depth interviews (35 minutes-1 hour) were conducted with full-time rural farmers (n = 15) in ten counties throughout Georgia. Using qualitative analysis, inductive coding was used to identify themes and patterns among transcribed interview recordings.

**Results:** Stressors reported by farmers included: financial, work-life balance, physical health and disconnect from non-farming populations. Farmers described feeling misperceived by those outside of their community and feeling a distinct lack of control due to external factors. All the farmers identified alcohol use as a primary coping strategy to deal with stressors.

**Conclusions:** This study identifies distinct stressors associated with a farming lifestyle and socio-cultural factors that are barriers to care for mental health and substance use in rural farmers. This study can provide information to health practitioners that may lead to a better understanding of the factors influencing farmer's health outcomes.

## ¿De qué trata este artículo?

### *Factores estresantes y estrategias de afrontamiento en agricultores rurales: un estudio cualitativo*

Se estudiaron los factores que causan estrés en agricultores de zonas rurales y las estrategias para evitar este problema. Se realizaron 15 entrevistas con una duración de entre 35 minutos y una hora. Los factores de estrés obtenidos fueron equilibrio entre vida familiar y laboral, finanzas, salud física y el alejarse de población no agrícola. Los agricultores indicaron que se enfrentaban a estos factores de estrés mediante el consumo de alcohol.

<b>AUTORES</b>	<i>Christina Proctor, Noah Hopkins</i>
<b>DOI</b>	<a href="https://doi.org/10.1080/1059924X.2023.2173691">https://doi.org/10.1080/1059924X.2023.2173691</a>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 3, pp. 415-424</i>

**TEMÁTICA: Riesgo Salud Mental**



## ARTÍCULO 34:

### Occupational Hazards Faced by Inland Fishers of Odisha State, India

**Objective:** To identify occupational hazards and hazard control strategies adopted by inland fishers of Odisha state in India. **Methods:** Information on occupational hazards faced by fishers was collected by personal interviews with 90 riverine and reservoir fishers of Odisha. Through qualitative discussions with key informants and review of literature, a list of occupational hazards were prepared and classified into physical, ergonomics, psychosocial, and natural. Responses were quantified, and descriptive statistics were used for data analysis. **Results:** Occupational hazards faced by fishers were physical (94%), ergonomic (75%), psychosocial (50%), and natural (34%) in nature. Physical hazards include sharp fishing instruments, uneven surfaces, high temperatures, and wet/slippery areas on the vessel along with the presence of snake/leech/crocodile/fish fin rays. About 97% of reservoir and 90% of the riverine fishers reported physical hazards leading to cuts, fractures, dehydration, headache, sunburn, snakebite, leech bite, crocodile bite, and injuries due to fish fin rays. Heavy nature of work and force exerting activities caused pain in the upper back (50%), shoulders (45%), and lower back (41%). Regarding psychosocial hazard, stress (31%), and anxiety (23%) was reported. Common reasons for this were uncertainty in fish catch and extended working hours, causing tiredness, headache, dizziness, and fatigue. Natural hazards like cyclones, floods, and excessive rain caused financial loss and damage to fishing nets and boats. Regarding personal protective equipment (PPE), floating buoys were used by 26% of riverine and 43% of reservoir fishers to avoid drowning. **Conclusion:** Occupational hazards in the inland fishing sector were identified as physical, ergonomic, psychosocial, and natural. No particular hazard control strategy was reported to be used. Integrating the occupational safety measures in the fisheries policies is thus needed.

## ¿De qué trata este artículo?

### *Riesgos laborales que enfrentan los pescadores continentales del estado de Odisha, India*

El objetivo de este trabajo fue determinar los riesgos laborales de pescadores de Odisha (India) y las estrategias para enfrentarlos. Se realizaron 90 entrevistas a pescadores, cuyos resultados mostraron los riesgos laborales más comunes. Se clasificaron como físicos (94%), ergonómicos (75%), psicosociales (50%) y naturales (34%). El trabajo pesado y las tareas de fuerza tenían como consecuencia dolores de espalda (50%), hombros (45%) y zona lumbar (41%). También se identificó que los pescadores sufrían estrés (31%) y ansiedad (23%), entre otros muchos resultados obtenidos. No se determinó el uso de estrategias para prevención de riesgos.

<b>AUTORES</b>	<i>Suchismita Prusty, Arpita Sharma</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2023.2178572">https://doi.org/10.1080/1059924X.2023.2178572</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 3, pp. 425-432</i>

**TEMÁTICA: Riesgo Salud Mental**

## ARTÍCULO 35:

### Workplace Injuries Caused by Commercial Fishing Winches— Alaska, 2000–2020

**Objectives:** Deck machinery is a leading source of hospitalized injury for commercial fishing workers in Alaska. More detailed data are needed about the specific circumstances leading to injuries for developing targeted prevention efforts.

**Methods:** This study analyzed claims submitted to the Alaska Fisherman’s Fund (AFF) to identify patterns among injuries in Alaska from commercial fishing winches.

**Results:** During January 1, 2000–November 1, 2020, 125 traumatic injuries from commercial fishing winches were identified, mainly occurring among males (94%), frequently among fishermen aged 30 years or younger (54%). Over 80% of winch injuries occurred in salmon fisheries. By gear type, 40% of injuries occurred on vessels using purse seine gear, 30% on vessels using drift gillnet gear, and 12% among set gillnet operators. Most injuries involved a fisherman having a body part caught in or compressed by a winch or cables attached to a winch (67%). Injuries mainly affected upper extremities including fingers (50% of cases) or hands/wrists (together 22% of cases). Injury severity was not formally assessed, but injuries ranged from contusions, sprains, and strains to finger or hand crushing injuries, upper limb amputation, skull fracture, spinal fracture, and chest trauma. Most cases involved fractures (23%), amputations (18%), lacerations (16%), and contusions (16%). Of all injuries, 51% were caused by anchor winches, 32% were caused by deck winches, 9% were caused by trailer winches, and 9% were caused by other types of winches.

**Conclusions:** Practical solutions are needed for avoiding entanglement and struck-by hazards when operating fishing winches. Anchor winches warrant focused attention, having accounted for more than half of all winch injuries identified in this study. Engineering solutions, including emergency stop devices or other simple mechanical interventions depending on winch type, could help to avert potentially disabling injuries from winches. Administrative controls such as task-specific training for winches should be emphasized, especially for younger or less experienced commercial fishing crew, who may be at increased risk for injury.

## ¿De qué trata este artículo?

*Lesiones laborales causadas por cabrestantes de pesca comercial: Alaska, 2000-2020*

Se estudiaron las reclamaciones del Fondo de Pescadores de Alaska para investigar las lesiones ocasionadas por cabrestantes de pesca comercial en estos trabajadores. La investigación se centró en un período de tiempo comprendido entre el año 2000 y 2020 y se determinaron 125 lesiones. La mayoría de ellas afectaron a hombres (94%), con una edad de 30 años o menores (54%). La pesca de salmón englobó más del 80% de las lesiones. Además, el porcentaje de lesiones se clasificó también según las redes empleadas en las tareas de pesca y según el tipo de cabrestante. La mayor parte fueron provocadas por un atrapamiento de cabrestante o cables de éste (67%). Las zonas del cuerpo más afectadas fueron las extremidades superiores y la gravedad fue muy diversa. Se deben aplicar medidas de prevención para trabajadores de este sector.

<b>AUTORES</b>	<i>Tristan M. Victoroff, Samantha L. Case, Lakshmi D. Robertson, Laura N. Syron</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2023.2171524">https://doi.org/10.1080/1059924X.2023.2171524</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 3, pp. 433-443</i>

**TEMÁTICA: Accidentes y Enfermedades Laborales**

## ARTÍCULO 36:

### Trends in Work-Related Fatal Farm Injuries, Saskatchewan, Canada: 2005–2019

**Objectives:** This study was conducted to estimate farm fatality rates and to describe patterns of fatal agricultural injuries on Saskatchewan farms from 2005 to 2019.

**Methods:** Data on work-related farm fatalities was collected from January 2005 to December 2019 in the Province of Saskatchewan as a part of the injury and mortality surveillance for the Canadian Agricultural Injury Reporting (CAIR) program. Data were abstracted from records made available by the Provincial Coroner's Office.

**Results:** There were 166 farm work-related fatalities recorded between 2005 and 2019 in Saskatchewan. The majority (93.4%) of work-related fatalities were in males. The overall work-related fatality rate was 10.5 (95% CI: 8.9–12.1) per 100,000 farm population. The overall age-adjusted work-related fatality rate was 18.1 (95% CI: 15.2–20.9) per 100,000 farm population among males and 1.4 (95% CI: 0.6–2.3) per 100,000 farm population among females. Age-adjusted rate decreased from 91.2 (95% CI: 69.4–117.66) per 100,000 farm population in 2005–2009 to 89.7 (95% CI: 64.9–120.2) per 100,000 farm population in 2015–2019 in males. Trend analysis of the work-related fatality rate in all cases showed a non-significant average annual decline of 2.6% ( $p = 0.156$ ). Rollover injuries contributed to a high proportion of fatalities in children (30.0%) and the elderly population (14.9%). The most common causative agent was a tractor, and the most common location of injury was the farmyard or field.

**Conclusion:** The burden of mortality in this industry is still substantial. There was a non-significant decreasing trend in the injury rate over the 15-year period. Elderly farmers continue to be at high risk for fatality, while the rates for children have declined. Application of prevention approaches could reduce the risk of fatal injury, and in particular the high proportion of rollover injuries in children and the elderly population.

## ¿De qué trata este artículo?

*Tendencias en las lesiones agrícolas mortales relacionadas con el trabajo, Saskatchewan, Canadá: 2005-2019*

Se estudiaron las tasas de mortalidad de trabajadores del sector agrícola y las lesiones mortales relacionadas con el trabajo en Saskatchewan (Canadá). Para ello, se consultaron los datos sobre las muertes producidas en trabajadores de este sector (entre 2005 y 2019), disponibles en registros de la Oficina del Forense Provincial. Se produjeron 166 muertes en el período de tiempo estudiado, de las cuales el 93,4% correspondieron a hombres. La tasa de mortalidad fue de 10,5 por 100000 trabajadores agrícolas. Las lesiones provocadas por vuelco, principalmente de tractor, representaron el 30% de las muertes de niños y un 14,9% de trabajadores en edad avanzada.

<b>AUTORES</b>	<i>Chandima P. Karunanayake, Niels Koehncke, Stanley Enebeli, Kendra Ulmer, Donna C. Rennie</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2022.2134244">https://doi.org/10.1080/1059924X.2022.2134244</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 3, pp. 444-455</i>

**TEMÁTICA: Accidentes y Enfermedades Laborales**

## ARTÍCULO 37:

### **Predictors of Dairy Worker Pre-Test and Post-Test Performance on a Dairy Safety Knowledge Test: Impact of Education Level and Native Language**

**Background:** Efficacy-driven assessments of linguistically appropriate occupational health and safety training (OHS) for dairy workers remain uncommon. This study analyzes predictors of performance on a dairy safety knowledge test using pre-and-post knowledge assessments. The safety training course was delivered by iPad™ to Idahoan dairy workers, managers, and owners.

**Objective:** To determine the predictors of safety knowledge scores among dairy worker course participants.

**Methods:** Predictors of pre-test (baseline) scores and change in test scores of n = 1,336 participants were compared, and multivariate iterative linear regressions were used to predict test performance, adjusting for variables such as occupation, years of formal education, native language, and years in dairy work.

**Results:** Test scores for Spanish and English speakers improved between pre-test and post-test. Years of formal education was the most predictive variable of higher baseline scores and change in test scores among dairy safety course participants, regardless of language.

**Conclusion:** Dairy worker safety training course results showed improvements in safety knowledge and test scores. Years of formal education of participants appears to be a key determinant of increases in safety knowledge, and therefore safety training programs need to address the learning needs of less educated workers.

## ¿De qué trata este artículo?

*Predictores del rendimiento en la prueba previa y posterior de trabajadores lácteos en una formación sobre seguridad láctea: impacto del nivel educativo y del idioma nativo*

Se realizó un curso de formación (mediante Ipad) sobre seguridad a trabajadores lácteos, gerentes y propietarios de Idaho. Se llevaron a cabo pruebas sobre los conocimientos que poseían los 1336 participantes, antes de la formación y después, comparando las puntuaciones obtenidas. Se empleó estadística y se consideraron variables como la ocupación, los años de educación, la lengua materna y los años de experiencia laboral en este sector. Hubo una mejora en las puntuaciones de la segunda prueba, respecto de la inicial, para participantes que hablaban español o inglés. Los años de educación que habían recibido los participantes suponían un aumento del conocimiento sobre seguridad en este ámbito. El curso de formación en seguridad para trabajadores lácteos supuso un aumento de conocimiento.

<b>AUTORES</b>	<i>M Benoit, E Austin, N Simcox, P Rabinowitz, M Yost</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2022.2140732">https://doi.org/10.1080/1059924X.2022.2140732</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 3, pp. 456-469</i>

**TEMÁTICA: Formación**



## ARTÍCULO 38:

### Pesticide Safety Behavior among Cocoa Farmers in Nigeria: Current Trends and Determinants

**Background:** There is a strong link between pesticide exposure risk and farmers' safety behavior. However, there is a lack of understanding of farmers' safety behavior in pesticide use and the psychological factors that influence it, especially in Nigeria.

**Objective:** This study aimed to identify safety behaviors in pesticide use and their determinants among cocoa farmers in Nigeria using the Health Belief Model (HBM).

**Methods:** We used a suitable questionnaire to retrieve data from 391 cocoa farmers across three major cocoa-producing belts in Nigeria. The data were analyzed using both descriptive and inferential statistics.

**Results:** Findings showed that cocoa farmers in this study sprayed insecticides, herbicides, and fungicides on their cocoa farms. The study revealed that most pesticides were not approved for cocoa production by the authority, but the farmers were still using them. The study participants overused surveyed pesticides as the quantities applied were beyond the recommended dosage by the manufacturers. Correlation analysis showed a relationship between education status, pesticide training, perceived susceptibility and cue to action, and the farmers' pesticide overuse. In all, 42.7% of the farmers showed unsafe behaviors, 49.1% showed intermediate behaviors, and just 8.2% reported safe behaviors in pesticide use. Multiple linear regression analysis showed that perceived barriers, susceptibility, self-efficacy, and cue to action were related to age, education status, and farm experience and accounted for 59.3% of the total variance in the farmers' pesticide safety behaviors. Perceived barriers had the most significant negative influence on the farmers' behaviors, while perceived susceptibility, self-efficacy, and cue to action positively influenced the farmers' behavior.

**Conclusion:** Future intervention programs in Nigeria incorporating significant variables, especially perceived barriers, in their designs with proper implementation could be more effective.

## ¿De qué trata este artículo?

*Comportamiento de seguridad con pesticidas entre los productores de cacao en Nigeria: tendencias actuales y determinantes*

Se estudiaron los comportamientos de seguridad durante la utilización de pesticidas en productores de cacao de Nigeria. Se utilizó para ello el Modelo de Creencias en Salud. Se realizó un cuestionario a 391 participantes. Algunos resultados mostraron que muchos de los pesticidas empleados por estos trabajadores no fueron aprobados por la autoridad competente. Además, las cantidades de pesticidas rociadas excedían las recomendadas. Un 42,7% de los agricultores realizaban comportamientos no seguros con estos productos.

<b>AUTORES</b>	<i>Oluseye O. Oludoye, Wattasit Siritwong, Mark G. Robson</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2022.2148147">https://doi.org/10.1080/1059924X.2022.2148147</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 3, pp. 470-485</i>

**TEMÁTICA:** Pesticidas

## ARTÍCULO 39:

### The Prevalence of Heat-related Illnesses and Associated Factors among Rice Farmers in Vietnam

**Objective:** The aim of this study was to examine the prevalence of heat-related illnesses (HRI) and their associated factors among rice farmers in Central Vietnam. **Methods:** A cross-sectional study was conducted using a sample of 379 farmers from August to September 2021 in Ha Tinh province on the north-central coast of Vietnam. A structured questionnaire was used to collect demographic information, farming activities, heat exposure, and health issues. Multivariable logistic regression was used to identify the factors associated with HRI. **Results:** At least one HRI symptom was experienced by 83.4% of farmers, and two or more HRI symptoms were experienced by 55.1% of farmers during the last harvesting season (the summer-autumn rice season, 2021). Factors significantly associated with HRI were age, having chronic diseases, type of farming tasks, the number of hours working in the heat, and water intake. Farmers working outdoors for more than 4 hours in the heat were 2.3 times [95%CI: 1.14–4.69] more likely to experience HRI than those working fewer than 2 hours. A higher risk of HRI was also associated with heavy farming tasks (OR = 2.35, [1.34–4.14]), having hypertension (OR = 3.75, [1.90–7.81]), cardiovascular diseases (OR = 2.53, [1.03–6.93]), and other chronic conditions (OR = 2.51, [1.51–4.25]). In contrast, a lower risk of HRI was found in the older group (OR = 0.44, [0.22–0.87]) and increased water intake (OR = 0.46, [0.27–0.77]). **Conclusions:** Hot weather is a significant occupational health risk for farmers in Vietnam. Changing the working schedule, working in shorter intervals, and remaining well-hydrated should be considered in HRI prevention strategies.

## ¿De qué trata este artículo?

*La prevalencia de enfermedades relacionadas con el calor y factores asociados entre los productores de arroz en Vietnam*

Se estudiaron las enfermedades asociadas con el calor que sufrían los productores de arroz del centro de Vietnam y los factores que las desencadenaban. En este estudio participaron 379 trabajadores y se empleó un cuestionario para obtener información variada. El 84,3% de los trabajadores tuvo, como mínimo, un síntoma de este tipo de enfermedades y el 55,1% dos o más síntomas en la última temporada de cosecha. Los factores que más se relacionaban con estas enfermedades por calor fueron la edad, padecer alguna enfermedad crónica, tipo de labores agrícolas realizadas, horas de trabajo bajo calor y consumo de agua. La probabilidad de sufrir estas enfermedades era mayor en trabajadores que estaban al aire libre más de 4 horas que en los que pasaban menos de 2 horas. El riesgo era mayor para labores pesadas, hipertensión, enfermedades cardiovasculares y otras de tipo crónico. El riesgo era menor para los trabajadores de mayor edad y que consumían más agua.

<b>AUTORES</b>	<i>Nu Quy Linh Tran, Son Nghiem, Cordia Chu, Mai Anh Luong, Thi Tu Ho, Dung Phung</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2022.2154086">https://doi.org/10.1080/1059924X.2022.2154086</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 3, pp. 486-496</i>

**TEMÁTICA:** *Temperatura*

## ARTÍCULO 40:

### **Development of an Ergonomic, Portable, Climber-Propelled Date Tree Climbing Device**

In the most of main date fruit producer regions, including Iran, date palm crown access operation is still performed traditionally. The date plantation workers need to climb date trees. This may cause an unsafe condition, which increases the risk of fall from height. It is also associated with ergonomic and health problems. The present study aimed to develop a date tree climber device (DTCD) covering all aspects of safety, ergonomics and efficiency. A primary model of the DTCD was structured and modified based on a review of existing devices, a field investigation and an unstructured interview with 20 farmworkers. Participants rated their comfort, perceived pain and discomfort as well as exertion levels when using the DTCD compared to a traditional device (Parband). In total, eight key elements were suggested for the desired device. More than 60% of the participants reported that the DTCD was comfortable/very comfortable compared to Parband. Additionally, DTCD could significantly reduce the pain and discomfort of the back ( $p < .001$ ), knees ( $p = .001$ ) and Ankles/feet ( $p = .01$ ). However, no significant difference was found between devices when the physical exertion was compared through Borg's RPE scale and heart rate analysis. The results of regression analysis showed that the DTCD users perceived lower exertion as the body weight increased ( $\beta = -0.18$ ,  $p = .013$ ). The signs of musculoskeletal disorders, pain and discomfort were strongly reduced among DTCD users and safety aspects improved, generally by reducing discomfort and physical exertion.

## ¿De qué trata este artículo?

### *Desarrollo de un dispositivo ergonómico, portátil y propulsado por un escalador para trepar palmeras datileras*

Acceder a la corona de una palmera datilera es complicado para los trabajadores, ya que tienen que escalar para poder llegar, suponiendo un riesgo de caída para la persona que lo realiza, además de conllevar riesgo ergonómico. En este estudio se realizó un dispositivo para escalar palmeras de dátiles, mediante el estudio de otros existentes, trabajo de campo y una entrevista a 20 trabajadores de este sector. Los trabajadores exponían la comodidad e incomodidad, dolor y esfuerzo que realizaban al utilizar este dispositivo en comparación con el uso de un dispositivo tradicional (Parband). Un porcentaje mayor del 60% de los participantes indicaron que este dispositivo era cómodo o muy cómodo en comparación con el tradicional, y que conseguía disminuir su dolor de espalda, rodillas, tobillos y pies. Los trastornos musculoesqueléticos e incomodidad disminuyeron con el uso del nuevo dispositivo.

<b>AUTORES</b>	<i>Maryam Rafiee, Mohsen Razeghi, Alireza Choobineh, Mehdi Jahangiri, Mozghan Seif</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2022.2158150">https://doi.org/10.1080/1059924X.2022.2158150</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 3, pp. 497-510</i>

**TEMÁTICA: Riesgo Físico**

## ARTÍCULO 41:

### The Effectiveness of a New Climbing Device on Working Postures, Musculoskeletal Symptoms, and Fatigue in Date Palm Farmers

**Background:** Musculoskeletal disorders are one of the main health problems found in date palm farmers. This study aimed to assess a new climbing device on working postures, musculoskeletal symptoms, and fatigue in date palm farmers.

**Methods:** Data were collected using questionnaires (Standardised Nordic Musculoskeletal Questionnaire, Multidimensional Fatigue Inventory, and System Usability Scale) and direct observations of the postures (using the Rapid Entire Body Assessment method [REBA]) from 70 date palm farmers during operating the traditional and new climbing devices.

**Results:** The new climbing device showed significant improvement in working postures (in the knee, legs/ankles, and shoulders). In all tasks, the REBA grand score significantly decreased after using the new climbing device ( $P \leq 0.05$ ). Significant differences were found in the severity of complaints ratings, particularly in the knee, legs/ankles, and low back areas, during performance tasks using the traditional and new climbing devices. Also, significant differences were found between the scores of physical and mental fatigue during use of the traditional and new climbing devices ( $P \leq 0.05$ ).

**Conclusion:** The findings indicate the effectiveness of the new climbing device as a low-cost, simple, and easy-to-use device that improves working postures and reduces musculoskeletal discomfort in date palm farmers.

## ¿De qué trata este artículo?

*La eficacia de un nuevo dispositivo de escalada sobre las posturas de trabajo, los síntomas musculoesqueléticos y la fatiga en los agricultores de palmeras datileras*

Los agricultores de palmera datilera están expuestos de forma habitual al desarrollo de trastornos musculoesqueléticos. Se estudió un dispositivo nuevo de escalada para analizar las posturas adoptadas en el trabajo, los trastornos musculoesqueléticos y la fatiga en estos trabajadores. Se emplearon cuestionarios y se observaron de forma directa las posturas realizadas por 70 trabajadores al realizar las tareas de escalar la palmera de forma tradicional y con el nuevo dispositivo. Estas observaciones se analizaron mediante el método REBA. Los resultados indicaron que la nueva herramienta mejoraba las posiciones adoptadas por los agricultores en hombros, rodillas, piernas y tobillos. Las puntuaciones obtenidas por REBA fueron menores con su utilización. Se obtuvieron diferencias importantes en las molestias de varias partes del cuerpo, en la fatiga física y en la fatiga mental cuando se empleaba el dispositivo tradicional y cuando se empleaba el nuevo. Se concluyó que el nuevo mejoraba las posturas adoptadas por los trabajadores y disminuía los trastornos musculoesqueléticos.

<b>AUTORES</b>	<i>Maryam Nourollahi-Darabad, Javad Nosrati, Davood Afshari, Gholam-Abbas Shirali, Ali Samani</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2022.2154297">https://doi.org/10.1080/1059924X.2022.2154297</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 3, pp. 511-522</i>

**TEMÁTICA: Riesgo Físico**



## ARTÍCULO 42:

### Occurrence of Occupational Injuries and Within Day Changes in Wet Bulb Temperature Among Sugarcane Harvesters

**Objective:** Climate change has implications for human health worldwide, with workers in outdoor occupations in low- to middle-income countries shouldering the burden of increasing average temperatures and more frequent extreme heat days. An overlooked aspect of the human health impact is the relationship between heat exposure and increased risk of occupational injury. In this study, we examined the association between occupational injury occurrence and changes in outdoor temperatures through the workday among a cohort of Guatemalan sugarcane harvesters.

**Methods:** Occupational injuries recorded for the 2014/2015 to 2017/2018 harvest seasons were collected from a large agribusiness employing male sugarcane harvesters in Southwest Guatemala. Wet Bulb Globe Temperature (WBGT) for the same period was collected from the El Balsamo weather station. We used a logistic mixed effects model to examine the association between injury occurrence and (1) the average WBGT during the hour injury was recorded, (2) the average WBGT during the hour prior to the injury being recorded, and (3) the change in the hourly average WBGT prior to the injury being recorded.

**Results:** There were 155 injuries recorded during the study period. Injuries were recorded most often between 14:00 and 16:00 (n = 62, 40%) followed by 8:00 and 10:00 (n = 56, 36%). There were significant differences in the average hourly WBGT and the hour in which injuries were recorded (p-value <.001). There were no observable associations between average hourly WBGT (OR: 1.00, 95%CI: 0.94, 1.05; p-value: 0.87), lagged average hourly WBGT (OR: 1.01, 95%CI: 0.97, 1.05; p-value: 0.71), or change in average hourly WBGT (OR: 0.96, 95%CI: 0.89, 1.04; p-value: 0.35) and recorded occupational injury.

**Conclusions:** This is the first study that has examined how changes in WBGT throughout the day are related to occupational injury among agricultural workers. Although this study did not demonstrate an association, there is a need for future research to examine how various measurements of WBGT exposure are related to occupational injury in agricultural worker populations.

## ¿De qué trata este artículo?

### *Ocurrencia de lesiones debidas al trabajo y cambios en la temperatura de bulbo húmedo en el transcurso del día entre los recolectores de caña de azúcar*

Se analizaron las lesiones debidas al trabajo y su relación con los cambios de temperatura en agricultores encargados de cosechar caña de azúcar en Guatemala. Se consultaron las lesiones en trabajadores a una gran agroindustria del suroeste de Guatemala, ocurridas en varias temporadas de cosecha (desde 2014/2015 a 2017/2018). La temperatura de bulbo húmedo se recogió de la estación meteorológica “El Balsamo”. Se determinaron 155 lesiones en el período de tiempo analizado. Un 40% ocurrieron entre las 14:00 y las 16:00 h y un 36% entre las 08:00 y las 10:00 h. Se encontraron diferencias entre la temperatura de bulbo húmedo promedio por hora y la hora en la que se produjeron las lesiones. Los resultados no afirmaron una relación, pero es necesario más investigación para comprobar si diferentes mediciones de temperatura de bulbo húmedo pueden relacionarse con lesiones debidas al trabajo en el sector de la agricultura.

<b>AUTORES</b>	<i>Miranda Dally, Krithika Suresh, Mike Van Dyke, Katherine A. James, Alison K. Bauer, Lyndsay Krisher, Lee S. Newman</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2023.2169425">https://doi.org/10.1080/1059924X.2023.2169425</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 3, pp. 523-531</i>

**TEMÁTICA: Temperatura**

## ARTÍCULO 43:

### Association Between Ergonomic Burden Assessed Using 20-Item Agricultural Work-Related Ergonomic Risk Questionnaire and Shoulder, Low Back, and Leg Pain in Korean Farmers

**Objectives:** This study aimed to determine the agricultural ergonomic burden in Korean farmers and to analyze its correlation with musculoskeletal pain.

**Methods:** In total, 1001 farmers (525 females and 476 males; mean age,  $59.6 \pm 7.5$  years) who owned or rented a farm and belonged to an agricultural cooperative unit were recruited. Ergonomic burdens were assessed using a 20-item Agricultural Work-related Ergonomic Risk Questionnaire (20 agricultural works). The presence of musculoskeletal pain (shoulder, low back, and leg/foot), Farm Stressor Inventory, subjective stress index, and agricultural workload (low, moderate, somewhat hard, or hard) were collected using structured questionnaires.

**Results:** Factor analysis of the Agricultural Work-related Ergonomic Risk Questionnaire revealed a four-factor solution: neck and upper limb, trunk and push – pull, machine and heavy lifting, and repetitive trauma. Cronbach's alpha was greater than 0.65. For 18 of the 20 items, there was a significant association with the Farm Stressor Inventory, subjective stress index, and agricultural workload. The most frequent ergonomic burdens were squatting (51.2%), highly repetitive wrist movements (53.5%), shoulder flexion at  $45\text{--}90^\circ$  (51.2%), and trunk flexion or twisting at  $\geq 45^\circ$  (48.8%). Ergonomic burdens were significantly different in 13 items between sexes. The musculoskeletal pain was associated with increased agricultural burdens in 10 items in male farmers and 14 items in female farmers.

**Conclusion:** Increased agricultural ergonomic burdens were associated with musculoskeletal pain. Ergonomic burden showed different patterns between male and female farmers, with female farmers appearing to be more affected by ergonomic burden than male farmers.

## ¿De qué trata este artículo?

*Asociación entre la carga ergonómica evaluada mediante un cuestionario de riesgos ergonómicos relacionados con el trabajo agrícola de 20 ítems y el dolor de hombros, zona lumbar y piernas en agricultores coreanos*

Se realizó un análisis ergonómico en agricultores coreanos y se estudió su relación con las molestias musculoesqueléticas. Participaron 1001 trabajadores del sector de la agricultura que pertenecían a una cooperativa agrícola. El estudio se realizó empleando un cuestionario de riesgos ergonómicos relacionados con el trabajo en la agricultura, compuesto por 20 ítems. Además, se emplearon otros cuestionarios para analizar las molestias musculoesqueléticas de los trabajadores en hombros, zona lumbar, piernas y pies, además de evaluar otras características. Los resultados mostraron que un aumento de la carga ergonómica estaba relacionado con las molestias musculoesqueléticas que sufrían los trabajadores. Además, la carga ergonómica afectaba más a mujeres que a hombres.

<b>AUTORES</b>	<i>Sora Baek, Jintae Park, Eun Kyoung Kang, Gowun Kim, Hyocher Kim, Hee-Won Park</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2023.2176958">https://doi.org/10.1080/1059924X.2023.2176958</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 3, pp. 532-544</i>

**TEMÁTICA: Riesgo Físico**

## ARTÍCULO 44:

### A Cross Sectional Study of Respiratory and Allergy Status in Dairy Workers

**Introduction:** Workers on dairy farms face exposures to organic dusts and endotoxin. At the same time, a number of studies of farmers have reported a lower prevalence of asthma in farmworkers compared to persons without farm contact. The “hygiene hypothesis” suggests that early life exposures on farms could be protective against allergic disease and asthma. Such protective relationships are less well studied in adult farm workers.

**Methods:** A cross-sectional analysis of respiratory function and allergy status was performed in a sample of dairy farm workers (n = 42) and community controls (n = 40). Measures of respiratory status (spirometry, exhaled nitric oxide FeNO, self-reported symptoms) and levels of total and bovine-specific IgE were compared between the groups.

**Results:** Prevalence of self-reported asthma and most respiratory symptoms was similar in the two groups, with the exception of increased report of dyspnea among dairy workers. In the dairy workers, level of lung function was not reduced and FeNO was not increased. In unadjusted and adjusted models, dairy work was not associated with reduced lung function or increased airway inflammation. Mean IgE levels did not differ significantly between workers and controls, but elevated bovine-specific IgE was detected only among dairy workers, with an apparent association between elevated bovine IgE and increased FeNO.

**Conclusion:** While dairy workers did not demonstrate increased asthma prevalence compared to controls, sensitization to bovine antigen in several workers appeared to be associated with airway inflammation. Occupational health programs for dairy workers should consider the risk of animal allergy as part of respiratory health protection efforts.

## ¿De qué trata este artículo?

### *Un estudio transversal del estado respiratorio y alérgico en trabajadores lácteos*

Se llevó a cabo un estudio transversal sobre alergia y función respiratoria de 42 trabajadores de granjas lecheras y de 40 individuos de la comunidad no empleados en el sector lácteo. El asma y gran parte de los síntomas respiratorios fueron similares en ambos grupos, aunque se indicó mayor disnea en los trabajadores lácteos. Los niveles de IgE (inmunoglobulina E) no eran muy diferentes entre los grupos, aunque se determinaron niveles elevados de IgE bovina únicamente en los trabajadores lácteos. Las medidas de seguridad y salud en el trabajo para este sector deberían incluir el riesgo de alergia a los animales para proteger la función respiratoria.

<b>AUTORES</b>	<i>Jose Carmona, Marine deMarcken, Pauline Trinh, Lauren Frisbie, Vickie Ramirez, Pablo Palmandez, Sverre Vedal, Coralynn Sack, Peter Rabinowitz</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2023.2171522">https://doi.org/10.1080/1059924X.2023.2171522</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 3, pp. 545-552</i>

**TEMÁTICA:** Exposición

## ARTÍCULO 45:

### Fatal Animal Related Incidents on Australian Farms - a 20-Year Review

**Objectives:** To assess demographic and causal factors of fatal farm incidents involving animals in Australia. **Methods:** Descriptive study of the National Coronial Information System for persons fatally injured by an animal on an Australian farm over the 2001–20 period. Data were analysed in relation to age, sex, state where incident occurred, work-relatedness and causal agents. **Results:** There has been little change in the mean number of animal-related injury deaths across Australia in the 2001–20 period (mean 6.5), however this is a 35% reduction on an earlier 1989–92 assessment (mean 10). The majority of incidents (81%) involved horses (n = 75) and cattle (n = 31). Males were involved in 86 (66%) cases, with 54 female cases. People aged 60 years and over accounted for 46% of the cases, with more than half occurring during work. Of the decedents, 85% fell from or were struck by an animal at the time of the incident, with 40% resulting in a head injury. **Conclusion:** While annualized case numbers have decreased slightly, the leading agents remain consistent with previous studies. The lack of genuine progress in addressing fatalities related to horses and cattle, along with the representation of older persons in the cohort, require attention drawing on the Hierarchy of Controls.

## ¿De qué trata este artículo?

### *Incidentes mortales relacionados con animales en granjas australianas: una revisión de 20 años*

Se analizaron los accidentes mortales provocados por el trabajo con animales en granjas de Australia. Se obtuvieron los datos disponibles de estos accidentes mortales correspondientes al período comprendido entre los años 2001 y 2020. Los datos se analizaron según sexo, edad, lugar, relación laboral y causas. No hubo mucha variación en el número medio de muertes en este período, pero sí se encontró una disminución del 35% en relación a un estudio anterior (1989-1992). El 81% de los accidentes fueron causados por caballos y ganado. Más casos correspondieron a hombres que a mujeres. El 46% de los accidentes ocurrieron en personas de 60 años o mayores. Más de la mitad se produjeron durante la jornada de trabajo. Respecto a las causas, el 85% fue por caída o golpe de un animal y el 40% por lesión en la cabeza.

<b>AUTORES</b>	<i>Kerri-Lynn Peachey, Tony Lower</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2023.2171523">https://doi.org/10.1080/1059924X.2023.2171523</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 3, pp. 553-560</i>

**TEMÁTICA: Accidentes y Enfermedades Laborales**



## ARTÍCULO 46:

### Effects of a warm-up intervention at the workplace on pain, heart rate, work performance and psychological perception among vineyard workers

**Objectives:** Warm-up sessions before physical activity are widely used in sports to help prevent injury and improve performance. Nowadays, companies assume that the effects observed in a sport context can be transferred to the workplace, particularly among workers exposed to biomechanical strain. Yet research on the use of warm-up interventions at the workplace is rather scarce and, when available, leads to conflicting results due to the low quality of the studies. To the best of our knowledge, there are no published studies to date assessing the effects of warm-up sessions among vineyard workers. The present study was designed to investigate if and how a single supervised warm-up session could be effective on perceived pain intensity, heart rate, work performance, and psychological perceptions among vineyard workers.

**Methods:** A total of 31 vineyard workers completed a randomized crossover study at the workplace. They were observed in real work settings, i.e. during the pruning activity. Each participant performed the activity under two conditions: 1) with a warm-up session beforehand (WU) and 2) without any warm-up (NWU). Heart rate (HR) was assessed continuously before and during the warm-up, and during the first hour of pruning. Perceived pain intensity over fifteen anatomical locations was assessed before (T0) and immediately after (T1) warm-up, and after the first hour of work (T2). Readiness to work was assessed at T1. Work performance was assessed in terms of the number of completed tasks (number of pruned vines). Perceived work quality and perceived work ability were assessed at T2.

**Results:** Perceived pain intensity over the lumbopelvic region was significantly higher at T2 than at T0, and at T2 than at T1, in both WU and NWU. Perceived pain intensity was not significantly different at T2 in WU and NWU. HR at T1 was significantly higher in WU than in NWU. Work performance, readiness to work, and perceived work ability were significantly higher in WU than in NWU.

**Conclusion:** This study showed that offering vineyard workers a supervised warm-up session at the workplace can lead to promising results where work performance and psychological perception are concerned.

## ¿De qué trata este artículo?

*Efectos de una intervención de calentamiento en el lugar de trabajo sobre el dolor, la frecuencia cardíaca, el rendimiento laboral y la percepción psicológica entre los trabajadores del viñedo*

Se investigó si un calentamiento para trabajadores de viñedos, supervisado y antes de comenzar el trabajo, podría afectar en el dolor percibido, frecuencia cardíaca, rendimiento laboral y percepción psicológica de estos trabajadores. En este estudio hubo 31 participantes. Se observó a los trabajadores durante la tarea de poda de dos formas, habiendo calentado previamente y sin calentar. Se realizó el seguimiento del dolor percibido, frecuencia cardíaca, etc. en diferentes momentos. Se concluyó que la sesión de calentamiento previa podía mejorar el rendimiento laboral y la percepción psicológica.

<b>AUTORES</b>	<i>Nicolas Larinier, Nicolas Vuillerme, Alexandre Jadaud, Solène Malherbe, Romain Balaguier</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2023.2173690">https://doi.org/10.1080/1059924X.2023.2173690</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 3, pp. 561-575</i>

**TEMÁTICA:** Seguridad y Salud General

## ARTÍCULO 47:

### Farm Safety: A Study of Young Farmers' Awareness, Attitudes and Behaviors

**Objectives:** Agriculture in the United Kingdom (UK) continues to be one of the most dangerous occupations, accounting for around a fifth of fatal workplace injuries and many other injuries, both major and minor. This study examines young farmers' awareness of, attitude to and behaviors around safety practices on-farm.

**Method:** A survey was undertaken amongst a group of young farmers aged 16-years and over who were actively engaged in farming in Northern Ireland, focusing on attitudes and behaviors towards safety on-farm. Drawing on previous literature, this study examined whether younger farmers demonstrate a higher degree of risk tolerance and are more likely to engage in risk taking behavior when undertaking routine farming practices leading to potential injuries and lost working days. The young farmers surveyed were classified into three groups and differences in risk perception were examined.

**Results:** The results indicate that, statistically, farmer age, intensity of farming alongside the level of farming experience contribute to incident occurrence. Our results indicate a need for attitudinal and behavioral change, particularly around risk-taking behaviors that ultimately result in farm incidents, impacting on both the performance of the farm business and individual farmer well-being.

**Conclusion:** Policies aimed at addressing perception and acceptance of risks among farmers are recommended.

## ¿De qué trata este artículo?

*Seguridad agrícola: un estudio sobre la conciencia, las actitudes y los comportamientos de los jóvenes agricultores*

Se analizó el comportamiento, conciencia y actitud frente a la seguridad en el trabajo de agricultores jóvenes. Se realizó una encuesta a varios trabajadores de Irlanda del Norte que tenían 16 años o más. Se estudió si los agricultores de menor edad suelen tener comportamientos de riesgo durante su trabajo y cuál es su percepción de los riesgos laborales a los que se exponen. Los resultados mostraron que la edad, la experiencia laboral y la intensidad de la agricultura dan lugar a incidentes. Se necesitan cambios en el comportamiento y actitud de estos jóvenes agricultores frente a los riesgos a los que se exponen.

<b>AUTORES</b>	<i>Hristina Manolova, Claire Jack, Simone Angioloni, Austen Ashfield</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2023.2180124">https://doi.org/10.1080/1059924X.2023.2180124</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 3, pp. 576-586</i>

**TEMÁTICA:** Seguridad y Salud General

## ARTÍCULO 48:

### Farm Machinery Injuries: A Retrospective Analysis of Admissions at a Level I Trauma Center in North Dakota

**Objectives:** The purpose of the present study was to characterize the incidence, injury characteristics, and outcomes of patients presented to a Level I adult trauma center in Fargo, North Dakota, with farm machinery injuries (FMI).

**Methods:** We performed a retrospective review of the trauma registry of Sanford Medical Center Fargo (SMCF) between January 2010 and December 2020. We compared admission characteristics of FMI admissions to non-FMI admissions, identified the types of machinery that are most commonly associated with FMI, and 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).

**Results:** Findings indicated that FMI admissions had a higher mean ISS, longer ICU LoS, and a higher mortality rate than non-FMI admissions. The leading cause of fatal and non-fatal FMI in this region are tractors. Males experience 91.2% of tractor injuries, and individuals 65 and over account for nearly 53% of all tractor injuries (n = 18). Males accounted for all deaths, tractor and otherwise. The “other machinery” category was the second most common category and accounted for 50% of female patients. Additionally, 24.5% of all FMI are related to machine maintenance.

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

## ¿De qué trata este artículo?

*Lesiones por maquinaria agrícola: un análisis retrospectivo de las admisiones en un centro de traumatología de nivel I en Dakota del Norte*

Este estudio analizó las lesiones por uso de maquinaria en trabajadores del sector de la agricultura. Se estudió la incidencia de estas lesiones, sus características y los resultados para cada paciente de un centro de trauma para adultos de nivel 1 en Fargo (Dakota del Norte). Se recopilaron datos del “Stanford Medical Center Fargo” pertenecientes al período de tiempo comprendido entre enero de 2010 y diciembre de 2020. Se analizaron los ingresos médicos debidos a lesión por maquinaria agrícola y los que no eran por este motivo. Se determinó la maquinaria agrícola que más lesiones producía, se analizó la gravedad de las lesiones, la zona corporal en la que se habían producido, el tipo, la edad y sexo del trabajador y el tiempo de ingreso en el centro médico.

Los trabajadores que sufrieron lesiones provocadas por maquinaria agrícola mostraron mayor gravedad, un período de tiempo más alto en UCI y una tasa de mortalidad mayor que los que padecían lesiones que no eran por este motivo. La maquinaria que causaba más accidentes mortales y no mortales fueron los tractores. El 91,2% de lesiones provocadas por tractores eran sufridas por hombres. Además, todas las muertes por el uso de estos vehículos agrícolas se dieron en agricultores de 65 años o mayores. Se estableció la clasificación de “otra maquinaria” como la segunda causa más frecuente, siendo el 50% de las personas trabajadoras afectadas mujeres. El 24,5% de las lesiones por maquinaria agrícola se debían a su mantenimiento.

<b>AUTORES</b>	<i>Elizabeth A Gilblom, Hilla I Sang, Angela B Johnson, Sheryl Sahr, Melissa Misialek, Deb Syverson, Zachery Staskywitz</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2022.2158151">https://doi.org/10.1080/1059924X.2022.2158151</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 3, pp. 587-594</i>

**TEMÁTICA: Vehículos y Maquinaria Agrícola**

## ARTÍCULO 49:

### Wildfire Smoke Monitoring for Agricultural Safety and Health in Rural Washington

**Objectives:** This study aimed to evaluate the performance of a low-cost smoke sampling platform relative to environmental and occupational exposure monitoring methods in a rural agricultural region in central Washington state.

**Methods:** We co-located the Thingy AQ sampling platform alongside cyclone-based gravimetric samplers, a nephelometer, and an environmental beta attenuation mass (E-BAM) monitor during August and September of 2020. Ambient particulate matter concentrations were collected during a smoke and non-smoke period and measurements were compared across sampling methods.

**Results:** We found reasonable agreement between observations from two particle sensors within the Thingy AQ platform and the nephelometer and E-BAM measurements throughout the study period, though the measurement range of the sensors was greater during the smoke period compared to the non-smoke period. Occupational gravimetric sampling methods did not correlate with PM<sub>2.5</sub> data collected during smoke periods, likely due to their capture of larger particle sizes than those typically measured by PM<sub>2.5</sub> ambient air quality instruments during wildfire events.

**Conclusion:** Data collected before and during an intense wildfire smoke episode in September 2020 indicated that the low-cost smoke sampling platform provides a strategy to increase access to real-time air quality information in rural areas where regulatory monitoring networks are sparse if sensor performance characteristics under wildfire smoke conditions are understood. Improving access to spatially resolved air quality information could help agricultural employers protect both worker and crop health as wildfire smoke exposure increases due to the impacts of climate change. Such information can also assist employers with meeting new workplace wildfire smoke health and safety rules.

## ¿De qué trata este artículo?

### *Monitoreo del humo de incendios forestales para la seguridad y salud agrícola en las zonas rurales de Washington*

Se estudió el uso de una plataforma de muestreo de humo, con un coste bajo, en una zona agrícola de Washington. Se colocó dicha plataforma con otro método de muestreo en los meses de agosto y septiembre de 2020. Se realizaron mediciones en un período con humo y en otro sin humo mediante ambos métodos. Los resultados mostraron, a nivel general, coincidencia entre ambos métodos de muestreo. Se concluyó que la plataforma era una buena opción para informar sobre la calidad del aire y así no poner en riesgo la salud de los trabajadores por exposición a humo de incendios forestales.

<b>AUTORES</b>	<i>Claire Schollaert, Elena Austin, Edmund Seto, June Spector, Scott Waller, Edward Kasner</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1080/1059924X.2023.2213232">https://doi.org/10.1080/1059924X.2023.2213232</a></i>
<b>PUBLICACIÓN</b>	<i>Journal of Agromedicine, 2023, Volumen 28, Número 3, pp. 595-608</i>

**TEMÁTICA:** Exposición





## RURAL AND REMOTE HEALTH

### ARTÍCULO 50:

#### Understanding the factors contributing to farmer suicide: a meta-synthesis of qualitative research

**Introduction:** Farming is associated with a range of ongoing occupational stressors that place farmers at an elevated risk for suicide. The increase of farmer suicide in recent years represents an important public health concern and requires an understanding of the circumstances and risk factors that contributed to a farmer's decision to die by suicide, as well as the protective factors that can help farmers manage the stressors. Qualitative research examining farmer suicide has grown in recent years and provides a rich description of the farmers' lives leading up to their suicide that cannot be easily captured from quantitative surveys. Therefore, we conducted a systematic review and meta-synthesis to understand the risk and protective factors preceding the farmers' suicide from the perspectives of their partner, relatives, or individuals who worked closely with them. We used this information to generate a conceptual model to illustrate the intersecting nature of farm culture, work-life stressors and mental health.

**Methods:** We conducted a comprehensive literature search for peer-reviewed studies using electronic databases Embase, PsycINFO, Academic Search Complete, PubMed and Scopus using a combination of search terms related to farming and suicide. All searching was conducted by two independent researchers. The selected studies were critically appraised using standardized forms to assess study quality. The qualitative data from each study was analyzed using meta-ethnography to identify underlying themes related to suicide and new interpretations of the topic while retaining the original meaning of each qualitative study.

**Results:** After independently screening studies, our final sample included 14 studies. We identified seven themes that contributed to farmer suicide: maintaining a 'farmer' identity, financial crisis, support and stress of family, the community panopticon, isolation from others, access to toxins and firearms, and an unpredictable environment. Using these themes, we developed a conceptual model called the Farming Adversity-Resilience Management framework (ie FARM framework) to highlight the cyclical and dynamic pattern of farm culture and to illustrate the risk factors that contribute to vulnerability to poor mental

health and even suicide. This model also identifies a variety of protective factors that can improve farmers' resilience to such stressors.

**Conclusion:** This is the first study to synthesize qualitative data about farmer suicide. While the enduring challenges and stressors of farming in rural areas may never be eliminated, there may be ways to help farmers build resilience to these factors. Our FARM framework presents a new way of understanding farm culture, the occupational stressors and farmers' wellbeing while also providing direction for future research and guidance for practical interventions. Policymakers and healthcare providers should consider developing and delivering mental health literacy programs to farmers and those who work closely with them to identify symptoms of poor mental health and to facilitate attitude change. Greater access to health care should be a priority in rural areas, and clinicians should be familiar with the stressors farmers face so that they can ask questions about their work–life balance to better assess the farmer's mental health and risk of suicide.

## ¿De qué trata este artículo?

*Comprender los factores que contribuyen al suicidio de los agricultores: una metasíntesis de una investigación cualitativa*

Se llevó a cabo una revisión sistemática y una metasíntesis con el fin de estudiar los factores de riesgo de suicidio de trabajadores del sector de la agricultura y la protección frente a éstos. Para ello, se analizaron las opiniones de las parejas, familiares u otros agricultores con los que compartían trabajo. Se realizó una revisión bibliográfica, mediante bases de datos, de artículos publicados sobre este tema con búsqueda por palabras claves. Se emplearon formularios estandarizados para evaluar la calidad de los estudios. También se empleó metaetnografía para su análisis. Se seleccionaron finalmente 14 estudios y se determinaron 7 temas que se relacionaban con el suicidio de estos trabajadores, como, por ejemplo, la crisis financiera, apoyo o estrés de la familia, aislamiento, etc. A partir de estos temas se creó un modelo conceptual en el que se resaltaban los factores de riesgo de suicidio y salud mental. Además, se mostraban medidas de prevención frente a estos riesgos.

<b>AUTORES</b>	<i>Rebecca Purc-Stephenson, Jenessa Doctor, Jude Elliot Keehn</i>
<b>DOI</b>	<i><a href="https://doi.org/10.22605/RRH8189">https://doi.org/10.22605/RRH8189</a></i>
<b>PUBLICACIÓN</b>	<i>Rural and Remote Health, 2023, Volumen 23, Número 3, pp. 8189</i>

**TEMÁTICA: Riesgo Salud Mental**



## SAFETY SCIENCE

### ARTÍCULO 51:

#### Thinking five or six actions ahead: Investigating the non-technical skills used within UK forestry chainsaw operations

**Background:** Non-technical skills (NTS) are the cognitive and social skills considered vital for safe and effective work performance alongside technical knowledge. The current study seeks to explore these skills in the high-risk domain of felling tasks within the UK forestry context.

**Method:** Semi-structured interviews encompassing the critical incident technique were conducted with 25 forestry employees (9 chainsaw operators, 6 supervisors, 10 managers).

**Results:** The results emphasise the relevance of NTS for chainsaw operations within the forestry context. A range of both social (leadership, teamwork & communication) and cognitive (situation awareness, decision-making, task management, cognitive readiness) NTS were identified. The elements and associated codes within each skill category illustrate the fit of these skills with the specific forestry context, with some elements entirely unique to chainsaw operations. A range of factors that could adversely impact NTS performance were also identified across five categories (external pressure, training and experience, environmental conditions, cognitive influences, individual constraints).

**Conclusion:** The results represent the first step towards developing a NTS framework and associated behavioural marker system for forestry chainsaw operations. Further research and development are required to produce a full system that can be used to support training and assessment of NTS in practice. However, the current results can be used to raise awareness of these skills within the forestry industry, and as support for the inclusion of NTS within chainsaw operator training programs.

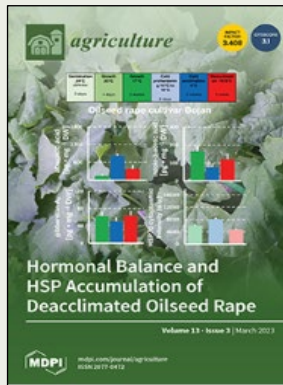
## ¿De qué trata este artículo?

*Pensando en cinco o seis acciones futuras: investigar las habilidades no técnicas utilizadas en las operaciones de motosierras forestales en el Reino Unido*

El objetivo de este trabajo fue analizar las habilidades no técnicas (cognitivas y sociales) en labores de tala, que tienen riesgo elevado, en el ámbito forestal en Reino Unido. En el estudio participaron 25 trabajadores forestales, de los cuales 9 eran operarios de motosierras, 6 eran supervisores y 10 eran gerentes. Se realizaron entrevistas a todos ellos. Se determinaron diferentes habilidades no técnicas, algunas cognitivas (ejemplos: gestión de tareas, toma de decisiones, conciencia de la situación y preparación cognitiva) y otras sociales (comunicación, trabajo en equipo y liderazgo). Además, se encontraron factores que podrían afectar a estas habilidades como condiciones ambientales, limitaciones individuales, presión externa, etc. Los resultados mostraron la importancia de estas habilidades para desarrollar labores con motosierras y en general para los trabajadores del ámbito forestal.

<b>AUTORES</b>	<i>Amy Irwin, Ilinca-Ruxandra Tone, Paulina Sobocinska, Jason Liggins, Sofia Johansson</i>
<b>DOI</b>	<i><a href="https://doi.org/10.1016/j.ssci.2023.106112">https://doi.org/10.1016/j.ssci.2023.106112</a></i>
<b>PUBLICACIÓN</b>	<i>Safety Science, 2023, Volumen 163, 106112</i>

**TEMÁTICA:** Seguridad y Salud General



## AGRICULTURE-BASEL

### ARTÍCULO 52:

#### **The Influence of Good Agricultural Practice (GAP) on the Productivity and Well-Being of Malaysian Sustainable Palm Oil (MSPO)-Certified Independent Smallholders in Malaysia**

Good agricultural practice (GAP) helps increase productivity by producing fresh fruit bunches (FFBs), and selling FFBs will increase Independent Smallholders' (ISH) income. However, although GAP promotes increased productivity, the effectiveness of GAP in delivering the well-being of the ISH in oil palm production areas remains to be determined. To that end, this study (i) measures the smallholder's well-being index, (ii) compares the well-being index by states in Malaysia, and (iii) maps the relationship between GAP implementation, productivity, and well-being. The study selected respondents using purposive sampling (PS). PS identifies and selects individuals with Malaysian Sustainable Palm Oil (MSPO) certification and knowledge and experience of GAP. As a result, the research interviewed 564 ISHs with MSPO certification from 162 Sustainable Palm Oil Clusters (SPOC). The study used Principal Components Analysis (PCA) and the Structural Equation Model (SEM) framework to achieve the objectives. The study found that the average ISH well-being index was 0.62, and ISHs in Sabah had the highest well-being, with 0.73 compared to other states. The study also found that GAP influences productivity and is positively and significantly related to well-being. Therefore, it indicates to ISHs and the government the importance of GAP implementation to increase ISHs' productivity and well-being.

## ¿De qué trata este artículo?

*La influencia de las buenas prácticas agrícolas en la productividad y el bienestar de los pequeños agricultores independientes certificados por el Sistema de Aceite de Palma Sostenible de Malasia (MSPO)*

Las buenas prácticas en el sector de la agricultura aumentan la productividad, pero es necesario conocer si también aumentan el bienestar de los pequeños agricultores independientes dedicados a la palma aceitera. El objetivo de esta investigación fue medir el índice de bienestar de estos agricultores, compararlo en los diferentes estados de Malasia y estudiar la relación entre bienestar, buenas prácticas y productividad. Participaron en este estudio 564 pequeños agricultores independientes, que tuvieran certificación de aceite de palma sostenible en Malasia y experiencia en buenas prácticas. Se realizó una entrevista, además de usar otras herramientas. El índice de bienestar promedio era de 0,62. El mayor índice se encontró en Sabah, siendo de 0,73. Se expuso la necesidad de buenas prácticas en agricultura para un aumento del bienestar y de la productividad.

<b>AUTORES</b>	<i>Nurul Atiqah binti Mohd Suib, Norlida Hanim Mohd Salleh, Md Shafiin Shukor, Norshamliza Chamhuri, Shahida Shahimi, Kamalrudin Mohamed Salleh, Khairuman Hashim</i>
<b>DOI</b>	<i><a href="https://doi.org/10.3390/agriculture13050990">https://doi.org/10.3390/agriculture13050990</a></i>
<b>PUBLICACIÓN</b>	<i>Agriculture-Basel, 2023, Volumen 13, Número 5, 990</i>

**TEMÁTICA:** Seguridad y Salud General

## ARTÍCULO 53:

### Psychological Determinants of Turkish Farmers' Health and Safety Behaviors: An Application of the Extended Theory of Planned Behavior

**Background:** Structural and behavioral factors are among the causes of occupational accidents in agriculture. The SACURIMA Cost network developed a questionnaire to measure the determinants of farmers' safety behavior based on the extended theory of planned behavior (TPB). Extended TPB adds subjective norms, subjective control, physical barriers and safety culture to TPB.

**Objective:** The aim of this study is to test the psychometric properties of the "Farmers Safety Behaviors questionnaire" developed by the SACURIMA Cost network.

**Methods:** A Turkish version of the questionnaire was applied to 305 farmers producing six different agricultural products in Turkey. The tool consists of 64 items measuring the determinants of four risk-related behaviors (fall prevention, machine handling, chemical-pesticide use, and animal handling) in a single extended TPB model.

**Results:** The alpha values for the six dimensions ranged from 0.69 to 0.89. The confirmatory factor analysis results for all dimensions were at acceptable levels (CFI range = 0.93–0.99; RMSEA range = 0.03–0.09). Four path models were used to test the behaviors and their predictors, and the results were found to be predictive. The criterion and known groups' validity analyses results were sufficient.

**Conclusion:** The "Farmers Safety Behaviors Questionnaire" is a valid and reliable tool to measure the determinants of occupational safety behaviors in Turkish farmers.



## ¿De qué trata este artículo?

*Determinantes psicológicos de los comportamientos de seguridad y salud de los agricultores turcos: una aplicación de la teoría ampliada del comportamiento planificado*

Este trabajo tuvo como objetivo estudiar la fiabilidad y validez de un cuestionario de comportamientos de seguridad de los agricultores creado por SACURIMA Cost. Se pasó el cuestionario a 305 agricultores de seis cultivos distintos en Turquía. Se concluyó que el cuestionario era fiable y válido para estudiar las conductas de seguridad ante riesgos laborales de los agricultores.

<b>AUTORES</b>	<i>Hakan Baydur, Erhan Eser, Nesibe Efruz Sen Gundogan, Emine Ayhan, Sultan Eser, Bahadır Dede, Esin Hazneci, Yeşim Benal Öztekin, Galip Ekuklu, Sibel Cevizci, Stephan Van den Broucke</i>
<b>DOI</b>	<i><a href="https://doi.org/10.3390/agriculture13050967">https://doi.org/10.3390/agriculture13050967</a></i>
<b>PUBLICACIÓN</b>	<i>Agriculture-Basel, 2023, Volumen 13, Número 5, 967</i>

**TEMÁTICA: Seguridad y Salud General**

## ARTÍCULO 54:

### Screening and Prioritization of Pesticide Application for Potential Human Health and Environmental Risks in Largescale Farms in Western Kenya

Pesticide application in agricultural and residential areas is a worldwide practice. However, human pesticide poisoning and environmental pollution through pesticide residues remain a challenge in the developing world. The present study investigated the intensity of pesticide application in large-scale farms in Trans-Nzoia County to screen and prioritize the pesticides for potential human health and environmental risks. A cross-sectional survey involving 348 farmers was conducted in the study area, and data was analyzed using SPSS. Environmental Exposure Potential (EEP) and Toxicity Potentials (TP) were analyzed from the Pesticide Properties Database (PPDB). Majority (99.4%) of the farms surveyed apply various pesticide classes that include: organophosphates (34.78%), neonicotinoids (15.22%), carbamates (10.87%), pyrethroids (10.87%), organochlorines (8.7%), triazoles (6.5%), copper-based (4.34%), avermectines (2.17%), triazines (2.17%), and amidines (2.17%), with the use of organic manures (26.3%). Despite the high prevalence of pesticide application, only 48.28% of farms conduct soil quality monitoring, 77.3% of whom do not have clear records and schedules for conducting periodic soil analyses. There was a strong positive correlation between the acreage of operation and the use of herbicides in weed management ( $r = 0.77$ ;  $p \leq 0.05$ ). In relation to degradation in the environment, 18.42% of the pesticides applied in the study area were persistent in soil sub-systems while 31.58% are persistent in water. Of the pesticides applied, 18.42% had high chances of bioconcentration in living tissues, 10.53% and 13.16% had the potential of contaminating groundwater and surface water resources, respectively. The ranked-order human toxicity potential associated with the used pesticides were teratogenicity (31.58%), neurotoxicity (28.95%), endocrine disruption (7.9%), carcinogenicity (7.9%), and mutagenicity (2.63%). However, 10.53% of the pesticides possess multiple toxicity potentials. Some farmers (53.70%) surveyed were not aware of the negative environmental impacts of pesticides with 59.50% having prior training on the use and handling of pesticides. Despite the availability of Personal Protective Equipment (PPEs) on larger farms, 31.9% of the farm workers do not adhere to their use during pesticide application. In conclusion, there is low awareness among farmers of human health and environmental risks associated with pesticide application. The study recommends training of farm managers, farm owners, and farm workers on pesticide handling and associated health and environmental effects.

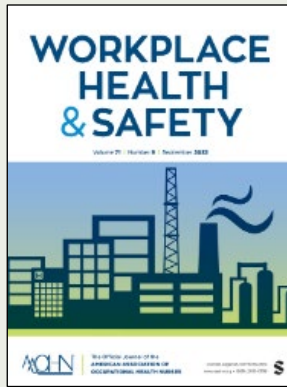
## ¿De qué trata este artículo?

*Detección y priorización de la aplicación de pesticidas con el fin de detectar posibles riesgos para la salud humana y para el medio ambiente en grandes explotaciones agrícolas en el oeste de Kenia*

Se estudió la aplicación de pesticidas en explotaciones agrícolas con el fin de analizar los riesgos para la salud humana y para el medio ambiente en el condado de Trans-Nzoia. Para ello, se llevó a cabo una encuesta a 348 agricultores. La toxicidad y la exposición ambiental se estudiaron mediante bases de datos de propiedades de pesticidas. Se obtuvieron diferentes resultados, entre ellos que un 53,7% de los participantes no conocían las consecuencias ambientales de su utilización. Por otra parte, un 59,5% estaban formados en el uso de pesticidas. Por último, aunque había equipos de protección individual disponibles para los agricultores, el 31,9% no los empleaban durante la aplicación de estos productos.

<b>AUTORES</b>	<i>Zedekiah Odira Onyando, Elizabeth Omukunda, Patrick Okoth, Sandra Khatiebi, Solomon Omwoma, Peter Otieno, Odipo Osano, Joseph Lalah</i>
<b>DOI</b>	<i><a href="https://doi.org/10.3390/agriculture13061178">https://doi.org/10.3390/agriculture13061178</a></i>
<b>PUBLICACIÓN</b>	<i>Agriculture-Basel, 2023, Volumen 13, Número 6, 1178</i>

**TEMÁTICA:** Pesticidas



## WORKPLACE HEALTH & SAFETY

### ARTÍCULO 55:

#### Prevalence of Presenteeism in Agricultural Workers: Systematic Review

**Background:** Presenteeism, the act of showing up to work when one is ill, is a prevailing global phenomenon, at rates varying from 30% to 90%. Presenteeism results in consequences to the worker's health, like pain, depression, and poor work ability, as well as consequences to the organization like productivity loss, negative feelings and engagement of coworkers, and risk of accidents. Agriculture is an important sector for the global economy, providing employment for 27% of the global workforce. This study aimed to estimate the prevalence of presenteeism and its associated factors among agricultural workers.

**Methods:** A systematic review was performed through searches at PubMed, Web of Science, LILACS, SciELO, EMBASE, PsycINFO, and Scopus databases. Observational studies (cross-sectional, cohort or case-control) that reported the prevalence of presenteeism in agricultural workers were eligible.

**Findings:** A total of 139 studies were found but only two met the inclusion criteria. The selected studies reported prevalence rates of presenteeism of 5.0% and 58.2%. Poor work safety climate, female workers, workers dissatisfied with management, and sunscreen not available at the workplace were strongly associated with the prevalence of presenteeism.

**Conclusions/Applications to Practice:** We concluded that the scientific literature about the prevalence of presenteeism among agricultural workers is scarce. Future studies about presenteeism among agricultural workers should measure the prevalence and/or incidence of presenteeism by using the epidemiological approach and, furthermore, should integrate these measures with the work productivity approach.

## ¿De qué trata este artículo?

### *Prevalencia del presentismo en trabajadores agrícolas: revisión sistemática*

Se estudió el presentismo de los trabajadores del sector de la agricultura y los factores relacionados. El presentismo se basa en asistir al trabajo, a pesar de encontrarse enfermo, lo que tiene consecuencias negativas tanto para el trabajador como para la organización (menor productividad, riesgo de accidentes, etc.). Se llevó a cabo una revisión bibliográfica, realizando búsquedas en diferentes bases de datos. Se recopilaron 139 estudios. Solamente dos de ellos coincidían con los criterios seleccionados. Se encontraron porcentajes de presentismo del 5% y 58,2%. Los factores asociados fueron una mala seguridad en el trabajo, trabajadores descontentos con la dirección y escasez de protector solar en el puesto de trabajo. Se concluyó una falta de investigación en este ámbito.

<b>AUTORES</b>	<i>Vitória De Barros Siqueira, Alaine De Souza Lima Rocha, Paulo Adriano Schwingel, Fernando Martins Carvalho</i>
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