

The global hemp industry needs Science not Sensationalism

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The Federation of International Hemp Organizations (FIHO) supports research and science aimed at the development of new hemp products and markets including animal feed stocks. A recent article sensationalized hemp fed cows as intoxicated without any scientific review of the study, its intentions or results. The regulatory pathway for hemp feed is being developed by scientists and researchers, who depend on standards, validated methods and peer review like that presented by Dr Bernhard Beitzke and Dr JC Callaway¹.

Industrial hemp grown for fiber and grain has thousands of years of history and use across the world, but its regulation is still being navigated because much of the science is new. As states and countries struggle to regulate an old crop with new research and analytical capabilities, the need to understand hemp as plant supplements, food and fiber are being mingled with the scrutiny of marijuana and intoxicating cannabinoids. This confusion between hemp and its psychoactive cousin has impacted farmers, consumers, policy makers and spilled into the media.

A recent article² on a Risk Assessment Study of the BfR (German Federal Institute of Risk Assessment) capitalized on this confusion and further exacerbated the regulation of hemp products as animal feed by popularizing a risk assessment study of high THC containing feedstock, with a feed research trial. The lack of clarity as to what material was fed, its composition before ensiling, its nutritional and processing description, or potential contaminants was left out of the press release, and instead the headlines read 'cows fed hemp were intoxicated'. Unfortunately, the article was popular and the study on 'cows high on hemp' was everywhere. While the article gained international press when it was published in 2022, the study had gone unscrutinised after its publication; leaving questions about the ingredients, study methods and the intention of the work itself.

The Association of Standards, Testing and Materials (ASTM) hosted a webinar focused on the analytical chemistry and standards needed to regulate hemp products as animal feed. The workshop presented research and test results by Chemists, Scientists and Animal experts from across the world including: United States, Canada, Germany, and Australia. The discussion centered around current research and the need for validated methods to quantify cannabinoids in feed and animal by-products, at levels that are attainable by regulators and the establishment of appropriate guidelines for animal and human safety.

With these goals in mind, Dr. Bernhard Beitzke presented a scientific review of the Risk Assessment Study. He also shared some of the findings from him and his research partner, Dr. JC Callaway, published already as a preprint³. A revised manuscript is currently under review for publication in Nature Food. The goal of the presentation was to present a critical review of this study in relation to previous hemp silage studies and assess its conclusions of risk potential. The authors investigated the feed materials finding that one

¹ JC Callaway and Bernhard Beitzke, Matters Arising re. Wagner et al., submitted to Nature Food, 07.06.2023, awaiting publication.

² Wagner et al. (2022), Transfer of cannabinoids into the milk of dairy cows fed with industrial hemp could lead to Δ^9 -THC exposure that exceeds acute reference dose, Nature Food, 3(11):921-932, <https://www.nature.com/articles/s43016-022-00623-7>

³ <https://chemrxiv.org/engage/api-gateway/chemrxiv/assets/orp/resource/item/642aef9cdb1a20696e758152/original/using-science-as-a-tool-to-shape-political-opinion.pdf>

was primarily flowering tops and leaves, it was spoiled silage and contained high concentrations of THC, while the other was representative of whole plant hemp silage that would become feed. The detailed assessment also reviewed the cannabinoid content along with the comparison of THC to THCA, an important measurement for calculating the amount of the psychoactive THC molecule that can be absorbed by the animal. The results of the original study fall disastrously short without an approved analytical method open to scrutiny, and no way to repeat, compare or analyze results.

The scientific value of the assessment presented by Dr Beitzke and Dr Callaway spotlights the need for education of farmers on the use of industrial hemp as feed, as well as additional research and the development of analytical methods accessible to researchers and allowing data collection and analysis. With the current legislation and rule-making language that uses non-detectable limits or zero, there is a need to rely on scientific rigor and safety assessments⁴, not sensational headlines that drive confusion and misbrand safe hemp products already being utilized as food and feed around the world. The Federation of International Hemp Organizations (FIHO) supports research and publications that drive innovation and understanding across the world and encourage dialogue and scrutiny as we develop a global hemp industry. FIHO would like to thank researchers, in particular Dr Beitzke and Dr Callaway, doing great work by writing this critical review, and for the continuation of their work.

Dr. Bernhard Beitzke

Bernhard Beitzke is a chemist with over 30 years of experience in the chemical and pharmaceutical industry in research & development, production, procurement, HSEQ and chemicals registration. Since 2015 he has been working as an independent consultant for the hemp industry, since 2017 he has been a member of the scientific advisory board of the European Industrial Hemp Association (EIHA). He published various contributions on industrial hemp, and on the toxicology and pharmacology of cannabinoids, in particular on THC and its risk assessment for determination of a reasonable Reference Dose.

Established in 2022 by a group of 20 global hemp organizations representing over 50 countries across the globe, FIHO is the international organization representing the HEMP sector.

The mandate of the FIHO is to: unite industry leaders; consolidate market expertise; coordinate resources; and, speak with one voice on hemp issues at the global level. FIHO aims to identify and create opportunities and scale up sustainable hemp production, marketing and trade to benefit the global hemp industry, consumers, and the environment.

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⁴ Bernhard Beitzke and David W. Pate (2022), A broader view on deriving a reference dose for THC traces in foods, Critical Reviews in Toxicology (51) 695-722, <https://doi.org/10.1080/10408444.2021.2008867>