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Subject: 2/5/19 BOS Agenda item 6(c): GMO & Cannabis

Honorable Board of Supervisors, CEO Angelo

I am writing to express my support for Supervisors Haschak and Williams bringing forward discussion regarding the possible development of an ordinance prohibiting genetic modification technology within Mendocino cannabis production.

I am the Director of the Mendocino Appellations Project (MAP), and our organization's mission is to protect and promote regulated Mendocino cannabis products that are produced in accord with standards that reflect our regional legacy, values and commitment to environmental stewardship.

I have been working closely with Ellen & David Drell and other local stakeholders to research this issue and develop possible solutions.

MAP pursues education, research and advocacy and works with accredited advisors. One of our organization's advisors, Eleanor Kuntz has been assisting our stakeholder group with this issue. Eleanor holds a PHD in genetics, and is planning to attend the Board of Supervisors meeting on Tuesday. I am also happy to put you in touch directly with Eleanor via email if you like. I have included her bio at the end of the email.

Following is a memo I have prepared addressing this issue from a rural economic development perspective:

Considerations:

Genetic modification technologies have advanced since the passage of Measure H in 2004 and the definition of 'genetically modified organisms' within our County ordinance is no longer adequate:

"Genetically modified organisms" means specific organisms whose native intrinsic DNA has been intentionally altered or amended with non-species specific DNA. For purposes of this Chapter, genetic modification does not include organisms created by traditional breeding or hybridization, or to microorganisms created by moving genes or gene segments between unrelated bacteria.

Gene editing is one such advancement that allows for both intra-species and inter-species genetic engineering. This technology is employed by entities holding expensive, exclusive licensing for the technology, which puts Mendocino's small scale under capitalized local producers at an economic disadvantage in the context of employing this technology within their businesses.

For example, in order to utilize CRISPR technology, an entity with genomics capacity must first license the technology from the Broad Institute of MIT, which holds the exclusive patent on the technology. Our farmers would either be working with such an entity and supplying their genetics for research and development (a very common business model presently) or farmers would purchase patented genetics. In either case, this would put the County's existing and remarkable pool of cannabis genetic resources at risk.

As cannabis is an annual plant, and many producers work with clone stock for production, the introduction of GMO cultivars could rapidly infiltrate both the regulated and unregulated production within our county.

Gene editing technology also invites the opportunity for those employing the technology to alter local existing cannabis cultivars sourced from our producers in such a way that once altered, these cultivars would legally be considered new and "unique" and thus qualify for exclusive private plant patents by the company that employed the technology. In this way, the genetic resources of our local breeders, which have been built up over years, decades and in some cases generations can be swiftly co-opted, and even rendered unmarketable or obsolete, by these private interests. This has been one of the biggest concerns our local producers have around the talking points and PR coming out of CordovaCann, with their emphasis on the value of our local cultivars.

The passage of Measure H in 2014 demonstrated clearly that the will of the people of Mendocino County was to ban the use and propagation of genetically modified organisms within our County. Genetic modification is a technology that will continue to advance, and so too must the language and definitions within our local policy in order to keep pace and remain in alignment with the intent of Measure H. Local policy must be relied on to protect one of our County's greatest assets as a legacy cannabis producing region, our genetic resources, which include cultivars of medical value such as those with noteworthy expressions of tetrahydrocannabinavarin (THCv) and Cannabidiol (CBD).

Finally, there is no question that a remarkable percentage of cannabis consumers in California, and those in the eventual National and International market would certainly pay a premium for cannabis that can be verified to be GMO free. This is probably the most valuable standard that our County has the opportunity to tie to a County of Origin certification program and marketing campaign for Mendocino cannabis. One only has to look to the natural foods industry to translate the economic potential. Mendocino has proudly been a GMO free county since 2004, the very first in the Nation. This is a testament to our regional values, and it is of the utmost importance that this boundary remain in tact.

Eleanor Kuntz

Eleanor has a B.A. degree in Biology with a focus in Botany from Smith College and a PhD in Genetics from the University of Georgia. Eleanor's academic work focused on gene flow and the evolutionary history between wild and cultivated plants, and has spent her post-graduate career using plant genetics to design and implement Best Agricultural Practices for natural product companies. Devoted to honoring the true benefit of plants to the human body, Eleanor is also a trained herbalist, as a graduate of the Sage Mountain School of Herbal Studies under the mentorship of Rosemary Gladstar. An entrepreneur bridging the gap between traditional herbalism and modern

science, Eleanor has recently merged her two plant passions together by co-founding LeafWorks, a botanical verification company using genetics improve medicinal quality, sustainability and transparency in the supply chain for the best possible plant experience. She is also Co- Founder of Canndor, the Peoples' Herbarium. Canndor is committed to documenting and preserving Cannabis cultivars and collective knowledge, through community engagement. Eleanor is passionate about enhancing our connection to plants and understanding the relationship between plant, ecosystem and planet.

Thank you for your consideration in this matter, and for your dedicated service to Mendocino County,

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"The health and vitality of the land its wildlife will be determined by the health and vitality of the communities that dwell on that land." -Wallace Stegner