

To:

Kentucky Industrial Hemp Commission
Commissioner James R. Comer
111 Corporate Dr.
Frankfort, Ky. 40601

Senate Ag. Committee
Senator Paul Hornback
700 Capitol Ave. Loop
Frankfort, Ky. 40601

January 28, 2013

Dear Sirs,

Regarding Hemp

I have been asked to comment to the Senate Agriculture Committee on the matter before it: the readmission of the crop called “hemp” to Kentucky Agriculture. I was the Principal Investigator for the Hawaii Industrial Hemp Project that demonstrated the crop in that state from 1999-2003. That project began in a brief window of optimism for the crop which had subsided in the ensuing “Post 9-11” decade that followed in which it was clear there would be no loosening of federal policy. The project demonstrated the agronomic issues facing any effort to introduce this crop to that state. This crop is a temperate climate crop that grows around the world above 35°--most commonly well-above--at latitudes that include Winnipeg, Paris and Kursk. Bringing it to Hawaii's 20° tropic climate presented unique challenges to a plant breeder. Meeting and addressing those challenges constituted the substance of that project.

As a plant breeder, my concern is with germplasm. For the project in Hawaii I dispatched a plant explorer to China (twice) and I myself went to Europe and Japan. Our quest was germplasm, which is to say, seed, because the seed is where the genetics is. In particular, I was interested to see if I could modify the germplasm that originated in places like Hungary, which is the type of hemp still being grown in Canada today, so that it wouldn't read the night's length in Hawaii as a signal to flower, which it did, when the plant had barely grown a foot. This is called a “photoperiod” response. When the project concluded its demonstration in 2003, I had plants that had grown over 10 feet in 3 months, and were still growing. I accomplished this by crossing selected accessions from the collection we made.

Before I could undertake this work, of course, it was necessary to comply with the plethora of regulation that encumbers this particular crop. I first had to obtain the appropriate license from the State narcotics bureau. I enclosed a quarter acre site on the island of Oahu in a 10ft cyclone fence which was topped with barbed-wire. Inside the fence, a security company monitored motion with an array of infra-red beams meant to detect intrusion (didn't work very well). Once in compliance with state regulations (which deferred to the federal regulations), I obtained the state license. I then proceeded to apply for the federal license. The site was inspected by the DEA, the requirements were satisfied and the DEA 225 permit was obtained. That permit allowed me to possess a specific controlled substance--in this case, cannabis--for the specific purpose detailed in the submitted Protocol. However, to actually bring the controlled substance into the US—which I had to, for reasons which are germane to the matter before this committee—it was necessary to have another permit, the "Permit to Import a Controlled Substance." This is what one must do before growing cannabis under current law. All these requirements were met and seed was imported with the help of a Canadian company that was already

growing hemp there commercially in 1999. The varieties were all of European (including Hungary and the Ukraine) origin. Hemp seed was planted in Hawaii on December 14, 1999, in a ceremony with Hawaiian Kahuna blessing.

Hemp was first planted in Kentucky on Clarke's Creek near Danville by a Mr. Archibald McNeil in 1775, we know this from the historical plaque that commemorates the spot. Hemp was a critical pioneer crop because rope and twine had to be of sourced locally. Most of the hemp grown in antebellum Kentucky went for the burlap that wrapped cotton bales. Later, Kentucky was principally a seed producer for the fiber crop that was grown in Wisconsin. By that time (early 20th century), the USDA was actively involved via its Office of Fiber Investigations' breeding program run by Lyster Dewey. Hemp moved to new niches, briefly Missouri, then Nebraska and finally Wisconsin where the industry persisted until 1958. The breeding program at the USDA produced several high performing varieties. The success of the program owed a great deal to an eponymous landrace known as Kentucky Hemp.

What was Kentucky Hemp and how does it relate to matters before this committee?

Just as, for the Hawaii Project, I had to collect germplasm from disparate locales and then to mold the character of successive progenies to adapt them to that environment, farmer-breeders in the years after McNeil had selected from local and introduced germplasm a type of hemp adapted to the environment of Kentucky (below 40° N). It was unique because, unlike the seed that McNeil would have planted in 1775, this hemp traced its genetics not just to Europe, but also to China. These two great pools of germplasm--let's call them "Western" and "Eastern"--separated for millennia, met in Kentucky when missionaries sent Chinese seed back home, circa 1850.

There is another example of the meeting of isolated "germpools" in America that coincidentally was occurring during this same time. This was the coming together of the "northern flint" and "southern dent" pools of maize (corn) genetics. They met in the midwest. A great debt is owed farmer-breeders like James L. Reid whose "Reid's Yellow Dent" was the fount of many of the important inbreds of the modern hybrid seedcorn industry. I digress to mention it because it will help place things in proper perspective.

Two similar, serendipitous events—the meeting of previously isolated races—released untapped genetic potential which led to superior agronomic varieties of their respective crops. From the one we birthed the plant we know today that blankets the heartland; the other we've lost.

And that is the situation that will confront anyone who undertakes to grow this crop: we no longer have the seed. Kentucky Hemp and all its derivatives bred at the USDA have been lost through failure to preserve the germplasm. We hear in the news of Norway's arctic seed locker, for the preservation of the world's seed against global calamity. In Fort Collins, Colorado, the United States has the National Seed Storage Laboratory with the same charge. Hemp, unfortunately, was neglected.

One will ask: "Can't we grow what they're growing in Canada?" The latitude difference is not as extreme as I experienced bringing seed to Hawaii, but the photoperiod effect will still manifest. It's called adaptation. Like farmer-breeders over a century and a half ago, we need hemp with better adaptation. We need the old Kentucky Hemp, we need its Chinese bloodline, and we need Lyster Dewey's champion variety "Chinamington."

Hemp is an adaptable plant. It escapes to the wild quite easily. The Sandhills area of Nebraska is covered with feral hemp that escaped from an effort in the 1840s to get the natives to grow hemp on the reservation (an interesting and valuable repository of germplasm that would predate the Chinese

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introduction of 1850 and would therefore share its bloodline with the hemp McNeil planted). Feral stands of hemp can be found today in many states tracing to historic industries. Some states encourage eradication efforts sponsored by the DEA; others appreciate feral hemp as a food source for game birds. It behooves us at this juncture to view these stands as genetic treasures. They are repositories of the genetics of Kentucky Hemp, scrambled, but recoverable (we hope).

Which brings me to my recommendation to this committee:

Even if the State of Kentucky were to rise in indignation at the hubris that has brought us to this impasse; even if the Legislature passed and the Governor signed legislation that indemnified farmers against federal laws if they chose to grow the crop, it would be a hollow gesture. Without federal acquiescence, live hemp seed is a controlled substance which cannot cross our international borders. And we have no seed. So what's to do?

My recommendation is the following:

- 1) Comply. Jump through the hoops as I did in Hawaii and establish a similar (though hopefully up-scale) operation. Dedicate the function of this facility to the recovery of Kentucky Hemp through collection, increase and evaluation of germplasm recovered from feral stands, importation and breeding.
- 2) Said facility might well be located where coal mining has altered the landscape and where the bioremediation potential of the crop could be simultaneously investigated.
- 3) This program could operate through a University or the State Ag Department. It should be funded. Don't place a time limit on it.
- 4) Establish legal protection for feral stands of hemp in recognition of the genetic treasure they hold.

Thank you for your attention,



David P. West, Ph.D.