

Dear Chairman Yaw, Vice-Chairman Pashinski, and Members of the Board,

Thank you for inviting me to provide testimony on behalf of Pennsylvania hemp farmers regarding what I view as the impending devastation of the entire cannabinoid hemp (CBD) industry. Behind closed doors in November 2025, during a must-pass budget, Congress inserted hemp-banning language through the appropriations process. This action completely sidestepped the authority of the Farm Bill, where all things hemp at the federal level are supposed to be decided. In other words, legislators were inadvertently forced to destroy hemp to fund the government.

My name is Tyler Shannon, and I'm a 32-year-old father of three beautiful young children (aged 1, 3, and 5), a husband, a mechanical engineer, a taxpayer, and, since 2021, a Pennsylvania hemp farmer. Since 2023, our small family farm has been based in Adams County, Pennsylvania. It is my dream, as well as that of my 3- & 5-year-olds, to one day hand over my farm to my children. They want to be farmers like their dad, so much, but without hemp that will be impossible. My first-generation family farm will cease to exist as of November 12, 2026, unless drastic change is made before then to the federal farm bill. Hemp is the only crop profitable enough to pay my mortgage. Just months ago, we were gathering plans to build a \$175,000 facility to expand and getting ready to hire a full-time employee. Now, 100% of investment has been put on hold, and we are trying to figure out how to avoid complete economic ruin. If hemp is not saved, my family will lose everything - including our farm.

1. Hemp Economics & Ethos

Hemp is the most versatile plant known to man. It can be grown for fiber, grain, CBD, and even for heavy metal soil remediation of contaminated sites. This plant is responsible for an estimated \$28 billion in revenue annually. In 2023, the USDA estimated that approximately 94-95% of that hemp grown was for CBD production, with fiber coming in at just 4%, and grain at less than 1%. It fuels a massive industry, sustains enumerable livelihoods, and generates massive tax revenue. Unlike many crops, it requires zero subsidization to remain profitable. For the state, economically, it is all upside and no downside. For the US, losing CBD production means losing as much as 95% of that \$28 billion in revenue.

The profitability of hemp depends on the quality and the sector of the market. Raw byproducts of hemp such as biomass typically have a conservative profit margin between 10-25%. Biomass is the least profitable sector in CBD hemp. For raw byproducts of hemp such as finished CBD hemp flowers, the profit margin typically ranges from 20-70%. In the case of exceptional quality hemp, profits can reach a 100% margin, particularly for retail sales. Finished goods like oils & tinctures can achieve profit margins as high as 50-70%. To put this profit into perspective, one acre of middle-of-the-road quality CBD hemp, sold wholesale and all at once to a distributor, typically ranges from 25-30x the profitability of one acre of corn. In the case of exceptional quality, 90th+ percentile CBD hemp, sold over time in smaller amounts, the hemp profit can reach as high as 100-200x the profitability of corn. This is particularly true if the middlemen are removed from the equation. Likewise, an acre of middle-of-the-road CBD hemp ranges from 10-40x the profitability of an acre of fiber hemp or grain hemp. In other words, hemp fiber & grain are nowhere even remotely as profitable as CBD hemp. They are not a viable solution to cover business expenses including a mortgage on a small farm.

Unlike growing hundreds of acres of corn or fiber & grain hemp, you can sustain your entire farm on a few acres of high-quality CBD hemp, which is always in demand. There is no heavy machinery required either other than a tractor to move compost. The rest of the job is best done by hand to preserve the quality of the hemp. Heavy equipment sharply degrades the quality of the hemp which puts the marketability of your crop in jeopardy. Meticulously planned and executed CBD hemp farming can be a massive boon for farmers. The paramount consideration for farmers is that the quality of the hemp crop is the security of your livelihood. This requires a climate-controlled facility to dry & cure the hemp, turning the fresh harvest into finished product.

Value isn't measured in dollars alone; value can also be measured in how well hemp farmers take care of and nurture their land. Hemp farmers, extremely disproportionately in relation to other crops, cultivate using organic inputs and regenerative methods. I fall into this camp, using only organic inputs and regenerative methods. I hold my soil health in the highest regard. Healthy soil grows healthy hemp maximizing yield & CBD percentage. My primary objectives as a hemp farmer include building soil structure, sequestering carbon, promoting biodiversity, and mitigating soil erosion & run-off. I take seriously the stewardship of my land and the crops we produce.

My single largest input is composted organic dairy cow manure followed by gypsum. These two combined covers all your nutrients for the soil and crops. Every year, my soil becomes more productive with less input required using the no-till method. In three growing seasons, I've transformed my soil from red clay to black and loamy clay. I use zero pesticides, zero fungicides, and zero herbicides. Dutch white clover, compost, and composted wood chips are my mulch. I use beneficial bacteria such as *Pseudomonas chlororaphis* to attack fungal pathogens. Due to companion planting, I have very low to no sap sucking insect pressure. However, I use the beneficial fungi, *Beauveria bassiana*, as a complete preventative for sap sucking insects. The result of my system is a highly profitable & ecologically responsible field of hemp. It can be done, and I am proof of that.

2. Backstory

In 2016 I graduated with honors and as salutatorian from James Madison University with a degree in engineering. I moved to this region from Virginia because I was hired as a mechanical engineer at Volvo/Mack Trucks in Hagerstown. I was instrumental in developing & calibrating after-treatment software, such as urea dosing control, aftertreatment temperature modelling, and on-board diagnostics for NOx & PM sensors. I also wrote software to help detect faulty DOCs, DPFs, and SCRs, which are the catalysts & filters that are responsible for removing particulate matter and NOx from diesel exhaust. Any 2016-2021 Volvo & Mack trucks, or Prevost bus you see on the road, has an ECU permanently encoded with my work. I solved several key issues with after-treatment components that were costing the company millions in warranty repairs. To sell these trucks in most states and many countries, you must complete OBD and emissions compliance testing. A large part of my job was conducting that testing, to ensure faulty components could be detected before tailpipe emissions exceeded legal thresholds. The work that I did, along with that of my peers, ensured Volvo/Mack could legally sell trucks in the US.

In early 2020, I had just been promoted to Senior Engineer, shifting to a data science-focused team, where we were processing and analyzing hundreds of terabytes of data from trucks on the road. I had just begun studying for my Professional Engineer (PE) exam. The new team I just joined was more of a support role for other engineers rather than a business-critical role. Just two weeks after accepting that promotion, COVID happened, and my world was flipped upside down. I was laid off, with a newborn, a new mortgage, and a new car. Had I not taken that promotion to a supporting role, I would almost certainly still be working at Volvo/Mack Trucks today as the team I'd just left was untouched.

Hemp first came on my radar in 2018. My wife had just been diagnosed with a chronic autoimmune condition that caused constant inflammation & pain and the associated anxiety that comes with it. Shortly after she was prescribed medical marijuana, and while it did most definitely ease every one of her symptoms, she didn't want to have to be high to feel better. This is when I stumbled across industrial hemp flowers, which contain high CBD, and very low THC. Instantly, she had all the relief of medical marijuana, with none of the high. I felt like I was watching a miracle being performed in real time. Finally, she was herself again and living a normal life. I specifically remember sitting at my desk not long after, telling my coworkers I don't think I can take orders from Swedes for 20 more years, and that I want to buy land and become a hemp farmer.

Back to the beginning of COVID: absolutely no one was hiring. I made a massive leap of faith in myself and decided I'd take a stab at becoming a hemp farmer. I was forced off a cliff and found out I had wings. Several prosperous years led to buying an 18-acre farm in 2023 and building a facility to process my hemp using my life's savings. I took yet another major economic risk, and it paid off. Business continued to grow, and I began to hire help. Just a few months ago, I was preparing to build another facility and hire a full-time employee. I have put my full investment on pause due to these sudden changes to the definition of 'hemp', which de facto bans all CBD hemp. Farmers were hiring and now they are laying off workers

3. The Ban

Congress voted to destroy an entire extremely profitable sector of agriculture, which provides thousands of farmers with work, hundreds of thousands of industry employees with jobs, and millions of Americans sober, safe, plant-based relief in a time when the job market is teetering on the edge, and millions of Americans are struggling to make ends meet.

A nationwide poll done in late 2025 by McLaughlin & Associates found that 77% of Republicans, and 71% of Democrats support hemp remaining legal with 'common-sense safety regulation.' The purpose of a representative democracy is to represent the will of the people, yet our will is being crushed without our input in the federal changes. The apparent consensus among Congress and the media is that the new hemp banning language only affects THC products and that it protects all other hemp products. That belief is factually incorrect, and I will demonstrate that it is factually incorrect, with figures. It is a complete ban on all hemp grown for CBD. All CBD products will cease to exist. As it stands, this federal effort is not common-sense safety regulation. This effort is annihilation of an industry.

Contained within the 'FY2026 Agriculture Appropriations Act' are two core components:

- 'hemp' is now defined as containing less than 0.3% total THC
- no more than 0.4 mg total THC is permitted per package

I will demonstrate how 0.3% total THC destroys the entire CBD hemp industry. Mature CBD-rich hemp typically contains between 0.4-0.7% total THC at maturity almost never less than 0.3% total THC which is the new federal limit. There are biological limitations that selective breeding is up against regarding the lower end of total THC in hemp plants. To selectively breed for higher CBD concentration and increase profitability, THC proportionately rises as well, albeit still being present in very low, non-psychoactive concentrations. The two are inextricably linked, and often breeders select for higher CBD:THC ratio, to be able to yield more CBD, with less THC. Across CBD-rich cultivars of hemp, that CBD:THC ratio generally falls between 20:1 to 40:1, the higher the better.

To quote from Congress itself, a 2018 report called *'Defining Hemp: A Fact Sheet'* noted, "In general, a level of about 1% THC is considered the threshold for cannabis to have a psychotropic effect or a psychoactive potential. Some suggest that cannabis with a THC level of greater than 1% be considered a drug varietal (e.g., marijuana)." Philosophically speaking, the distinction between hemp and marijuana *should* be defined by an empirically derived threshold, below which is completely non-psychoactive. Given that all modern CBD-rich hemp cultivars contain less than 1% total THC, 1% total THC *should* be the threshold. This will protect non-psychoactive hemp cultivars, keep hemp farmers in business, and remove psychoactive products from the market. If this ban really is about the effects of THC, then 1% total THC is the sensible, just solution. Switzerland, Australia, Czech Republic, Thailand, Uruguay, Argentina, Belize, Zimbabwe, Ecuador, and Malawi, all use 1% total THC as their threshold.

When THC is present in subperceptual concentrations, there is no difference between consuming 0.3% total THC, and 1% total THC - both are completely non-psychoactive. If a double-blind study were to be conducted using samples of 0.2%, 0.4%, 0.6%, 0.8%, and 1.0% total THC, the study participants would not be able to determine which sample contains which total THC percentage. Likewise, the researchers would not be able to determine which was consumed, as the participant would be just as sober consuming 0.2% total THC as they would consuming 1% total THC.

Next, I will demonstrate the irrational nature of using 0.4mg THC per package, in praxis, to distinguish between hemp and marijuana. Hemp fiber is often sold in bales of 30 pounds. While the flowers of that plant generally contain 0.1-0.2% total THC, the hurd contains around 0.01% THC when processed. A 30-pound bale of hemp fiber is expected to contain 1,361 mg of total THC, or 3403x the new legal limit. By the letter of the law, this bale of hemp fiber is now considered marijuana.

All parts of every type of hemp plant contain trace amounts of THC. Aside from that, if you are lucky enough to find a CBD-rich hemp plant that produces exactly 0.29% total THC, just one gram of its flower will contain 2.9 mg of THC - 7.25x the legal limit. Even though it contains less than 0.3% total THC, one gram of 0.29% total THC industrial hemp flower is technically 'marijuana' starting November 12, 2026. Milligram limits make sense for orally ingested hemp-derived products which are clearly divisible into serving sizes, not for the raw flowers.

No hemp farmers will be growing CBD hemp since the CBD-rich cultivars that contain less than 0.3% total THC, for all intents and purposes, do not exist, and selling hemp in small enough increments that contain less than 0.4mg per package is completely unrealistic. If no hemp farmers are growing CBD hemp, there will be no CBD products. The new hemp banning language is incoherent and demonstrates a fundamental non-understanding of the plant being regulated.

4. Economic Devastation

The cost of property has skyrocketed in the past 10 years. In our case, it has doubled between 2013 and 2023. A farm with a mortgage opened in 2023 needs to be substantially more profitable to pay the bills as compared to a farm with a mortgage opened in 2013. The profitability of CBD hemp compensates for this. In addition to exorbitant mortgage costs, my family's health insurance premiums more than doubled in 2026. My health insurance costs now are a similar amount each month as the mortgage on my 18-acre farm. If there was ever a skyscraper-sized red flag that every legislator in America needs to internalize, it is that a self-employed farmer, head of a family of 5, is paying roughly the same amount monthly for health insurance that he or she is paying for his or her mortgage.

Only the cultivation of CBD hemp produces the profit margins to compensate for the metaphorical noose being tightened around the neck of every American, and Pennsylvanian, farmer. The immense asset inflation over the last decade, particularly regarding buying land, is enormously disincentivizing young people from getting into farming. CBD hemp offers a way around that. The average American hemp farmer is 49 years old, while the average American farmer is 59 years old. This data is proof that hemp farming is a viable avenue for younger people to get into farming unlike, any other crop. An extremely serious national security issue is fomenting on the horizon if young people don't take up farming.

If changes at the federal and or state level are not made, our income will cease abruptly on November 12, 2026. We will have burned through all our cash savings within 2-3 months. We will have to dip into our children's college savings accounts once those reserves are gone. When we've burned through that, we will have to withdraw our retirement savings, paying a steep penalty, to buy us a few more months. We can survive approximately 6 months without income and then we will default on our mortgage and lose everything we've grinded ourselves down to the bone to work for. It is cruel on principle alone for the federal government to create a hemp industry, encourage participation and mass investment, and then pull the rug out from under farmers just 8 years later.

We have already invested \$15,000 in seeds, compost, and organic amendments for the 2026 growing season. These investments in the next growing season will be worthless to us if we cannot grow hemp.

5. Regulatory Recommendations

I see this moment as an opportunity for the Commonwealth of Pennsylvania to step forward on the national stage and lead the way in writing fair regulation for hemp. In 1683, one of the first measures ever passed by the Pennsylvania Assembly was "An Act for the Encouraging of Raising Hemp in Pennsylvania," a measure meant to strongly encourage hemp cultivation in our state, even going so far as to allow hemp to be used as legal tender. We have the climate, the land, and the fertile soil. We could be leading the nation in hemp cultivation.

It would be an incredible miscarriage of the will of the people to let this booming hemp industry be decapitated. Hemp farmers like me truly do firmly support *actual* common-sense regulation. We have utter disdain for synthetic cannabinoids and bright & flashy packaging that piques the eyes of children. All decent hemp farmers self-regulate as is, but we are willing to embrace an appropriate amount of regulation. In fact, we've been asking for it for years. One must understand the industry to competently regulate the industry. To understand industry, one must work with industry experts as there are many nuances that are not immediately apparent, but which can cause major issues to farmers if taken into consideration.

I recommend the following for the competent regulation of the cultivation & sale of raw CBD hemp:

- 1.0% total THC threshold for the sale of hemp ¹
- 0.5% total THC threshold 30 days pre-harvest for cultivation of hemp ²
- Age verification (21+) ³
- QR code with Certificate of Analysis (CoA) on packaging ⁴
- Requirement of cultivation or resale permit to sell hemp ⁵
- Ban of synthetic cannabinoids & packaging mimicking candies & snacks ⁶
- No THC milligram caps for raw hemp flower - use 1% total THC by mass as the sole compliance metric ⁷

¹ There is precedent for 1.0% total THC - countries such as Switzerland, Australia, Czech Republic, Thailand, Uruguay, Argentina, Belize, Zimbabwe, Ecuador, and Malawi use this threshold to make the distinction between 'hemp' and 'marijuana'. This is a rational threshold, as it preserves non-psychoactive hemp cultivars, while removing everything else.

² Currently, most states, including Pennsylvania, use 0.3% total THC 30 days pre-harvest testing. This arbitrary and extremely low threshold results in the unnecessary destruction of crops that would have otherwise been completely non-psychoactive, and less than 1% total THC, at harvest. As we have established, hemp under 1% total THC is not psychoactive. Generally speaking, the THC level roughly doubles between 30 days-preharvest, and harvest. Therefore, if we use 1% total THC as the legal threshold, this can be monitored by proxy by verifying samples contain less than 0.5% total THC 30 days pre-harvest. Each state should continue handling this testing.

³ Age verification is something we universally agree with. Hemp products should not be in the hands of children, and this is a simple measure we can take to ensure that.

⁴ Contained on each individually packaged hemp-derived product should contain a QR code linked to the Certificate of Analysis. This creates a scenario where law enforcement, or anyone else, can use their smartphone to see the cannabinoid analysis.

⁵ Just as farmers need a license to cultivate, it is reasonable for resellers to have one as well. This is a natural filter that will remove many of the bad actors from the space immediately. A cultivation license should double as a seller's license, as cultivators are already regulated.

⁶ Synthetic cannabinoids were never the intention of the 2018 Farm Bill, and on principle, the overwhelming majority of hemp farmers do not support their inclusion. They don't have a long history of use, and we don't understand their impacts. Likewise, packaging that mimics candies and snacks draws undue attention from minors, who these products should be kept away from.

⁷ Whereas using the metric of THC milligram caps per serving is a sound method for regulating products derived from the extracted & processed cannabinoids from raw hemp flower, biomass, etc., this regulation method is incongruent with the nature of hemp flower, as it is not divisible into serving size - it is a raw, unprocessed product of the plant. The only sound metric to judge its compliance by, is total THC by mass, whereby 1% is the ideal threshold to preserve all non-psychoactive hemp cultivars.

Sincerely,

Tyler Shannon - Pennsylvania Hemp Farmer