2025 Agronomic Outlook: Industrial Hemp in Montana's Golden Triangle

Planting Progress in Fort Benton and the Golden Triangle

Spring planting of industrial hemp is now essentially complete across IND HEMP's fields in the Fort Benton area and the surrounding Golden Triangle region. All contracted hemp acres were seeded this spring, encompassing both irrigated fields and dryland. We can report that planting proceeded smoothly under favorable conditions. The dryland hemp planting could be seen as an experimental effort in 2025.

All fiber hemp fields have emerged uniformly, forming green rows across the plains. These fiber varieties were planted first and have benefited from recent moisture, resulting in good germination and early growth. Meanwhile, grain was planted shortly after and is now beginning to emerge as well. Across both fiber and grain acres, emergence has been timely and even, which sets the stage for healthy crop development. IND HEMP's agronomy team reports that every field is off to a solid start with minimal gaps or issues in stand establishment. The inclusion of both irrigated and dryland plots this season adds a layer of diversity to growing conditions, but so far each planting has responded well to its environment. The dryland fields, aided by spring rains, have shown initial emergence, though their continued success will depend on natural precipitation through the season. Overall, the region's hemp crops have entered June with a full stand in place and strong early vigor, positioning the 2025 season on a firm footing.

Early Season Crop Conditions and Pest Outlook

"Off to a strong start, everything has been planted, and both the fiber and grain has emerged looking strong and healthy. Only potential challenge to mention is the grasshoppers are out heavy, but from past experience we see they go for drought-stressed crops and with the rain and everything being so green in our area, at this time we are not that concerned." – *Dalton Wittmer, IND HEMP Agronomist.*

This upbeat assessment from IND HEMP's agronomist Dalton Wittmer captures the early season status. The hemp crops are indeed looking healthy and vigorous as of early June. Fields of fiber hemp already stretch in robust green stands, and newly emerged grain hemp seedlings are coming up strong behind them. Thanks to careful planting and favorable soil conditions, the young hemp plants have good early root development and uniform growth. Regular field scouting has thus far found no major issues with emergence or seedling diseases. Weed pressure is being managed, and the crop's rapid early growth habit will also help it compete against weeds naturally in the coming weeks.

Figure 1: Photos showing emergence, root structure and overall uniformity of IND HEMP's 2025 season.

The one concern noted has been the unusually high number of grasshoppers observed this spring. Producers and agronomists in the region are reporting heavy grasshopper presence in pastures and field edges. Grasshoppers are a familiar pest in Montana agriculture – their populations often spike in hot, dry years and they can cause significant defoliation when they move into crops. In fact, during past drought-stressed seasons, Montana hemp fields have suffered severe grasshopper damage; some 2020 hemp stands were reduced to "just sticks—60 acres of just sticks" by voracious infestations. Such outbreaks tend to occur under a perfect storm of conditions: a wet spring that allows grasshopper eggs to hatch abundantly, followed by drying conditions that drive the hungry insects toward the remaining green vegetation (often farmers' crops).

Fortunately, 2025's circumstances are different. Thanks to a wetter spring, the landscape across the Golden Triangle is far greener than in recent drought years, and there is ample moisture and green plant cover in the environment. Grasshoppers prefer drought-stressed, dry environments and tend to concentrate on crops when surrounding vegetation has dried up. This year's well-watered conditions mean that the grasshoppers are more dispersed and have plenty of wild forage, which lowers the pressure on hemp fields. As Dalton Wittmer noted, the team's past experience is that grasshoppers "go for drought-stressed crops," and with everything "being so green in our area," the risk to hemp stands is markedly reduced at this time. IND HEMP is monitoring pest levels closely, but thus far only minor leaf feeding has been observed on a few field margins – no economic damage. If conditions stay relatively moist and the rangeland remains green, experts anticipate grasshopper impact will remain low compared to the devastating levels seen in severe drought years. In addition, hemp is a vigorous crop; healthy plants can often withstand moderate defoliation without significant yield loss. Should grasshopper hotspots develop, growers have mitigation tools (such as targeted baits in field borders), but no widespread intervention has been necessary so far. Overall, crop conditions are excellent, and pest pressures are manageable heading into the summer.

Weather Patterns and Climate Outlook for 2025

The weather this spring has been a boon for Montana's Golden Triangle, contributing directly to the strong start for hemp. May is typically one of the wettest months of the year in this region, and 2025 lived up to that reputation. An unsettled weather pattern persisted through much of May, bringing frequent scattered showers and thunderstorms. As a result, many central Montana locations recorded well above average precipitation for May. For instance, Great Falls and surrounding areas received significantly more rainfall than normal, and Helena logged its wettest May since 1981. This abundant late-spring moisture has replenished soil profiles and kept the landscape unusually green. Topsoil and subsoil moisture in the Golden Triangle are in much better shape than in recent years at this same time. The timely rains ensured that newly planted hemp seeds had adequate moisture for germination and early growth. Fields that were planted into good soil moisture have seen those reserves sustained by additional rains, minimizing any early-season drought stress. In short, spring 2025 delivered a favorable mix of warmth and rainfall that set the stage for uniform hemp emergence and vigorous seedlings. Farmers across the region have been pleased to see their fields and pastures flourish after multiple drier-than-average years.

As the season progresses, attention turns to the summer climate outlook. Long-range forecasts from NOAA's Climate Prediction Center indicate that Summer 2025 will likely be hotter and slightly drier than normal in Montana. This projection is not a surprise – Montana summers are typically warm and relatively dry – but forecasters are suggesting this year could lean even more so. The latest seasonal outlooks show a high probability of above-average temperatures across the Western U.S., including Montana, and a tendency toward below-normal precipitation in the northern Rockies and northern Plains. In other words, the Golden Triangle region should prepare for a warmer-than-usual summer with potentially limited rainfall. Notably, the Pacific climate pattern has shifted out of La Niña, and we are in a neutral ENSO state (neither La Niña nor El Niño). In past years when La Niña faded, Montana sometimes saw variable outcomes – for example, 2018 was a neutral year that ended up wetter than average and had a light fire season. With neutral conditions this year, there is no strong climate driver to either intensify or alleviate drought; the monsoonal high pressure that influences Western summer weather is expected to be near normal. This means we could see typical summer patterns of intermittent thunderstorms, but no guarantee of sustained rainfall. As past experience has shown, as long as hemp is able to get a "good start" and is well established, it then becomes relatively drought tolerant.

For IND HEMP's crops, the seasonal outlook means irrigation management will be crucial on the fiber fields, and the dryland hemp will be put to the test if and when the rains taper off. The ample soil moisture from spring gives a helpful buffer, but if the summer turns hot and rain becomes scarce, dryland hemp growth could slow and plants may experience stress during critical phases like flowering. The irrigated hemp fields, on the other hand, should be able to thrive as long as water is available to meet the evaporative demand of hotter weather. Montana's producers are accustomed to these swings; many have already started scheduling irrigation passes to build a moisture reserve in the root zone ahead of any heat waves. The good news is that current forecasts, while warm, do not indicate extreme drought onset at this moment – about a quarter of Montana remains drought-free as of early May, thanks to the wet spring. The region's winter wheat crop conditions (often a bellwether for moisture) were rated nearly 80% good to excellent, a dramatic improvement over the previous year and a sign of better subsoil moisture availability. Going forward, hemp growers will watch the skies and long-range models closely. If periodic showers or storms can break up the dry spells, 2025 could continue to be a standout growing season. Additionally, the lack of severe drought stress in neighboring vegetation should keep pest pressures (like grasshoppers) from escalating, as discussed. The climate setup for 2025 began favorably with a wet spring, and while summer is expected to be hot and on the drier side, the hope is that timely rains and irrigation will carry the hemp crop through to a successful harvest. IND HEMP's team will remain vigilant, adapting field management to whatever Mother Nature delivers this summer.

Agricultural Heritage of the Golden Triangle

The region encompassing Fort Benton and the Golden Triangle is steeped in agricultural tradition and is often referred to as the breadbasket of Montana. The "Golden Triangle" is an area of north-central Montana roughly outlined by the towns of Shelby, Havre, and Great Falls. It earned this moniker due to the wealth of grain – particularly wheat – produced on its vast plains. Fertile soils, ample summer sunshine, and historically sufficient rainfall made this region one of the most productive farming areas in the state. Wheat farming has long been king in the Golden Triangle, and Montana consistently ranks among the top wheat-producing states in the U.S. (Montana was third in wheat production nationally as of a few years ago). Chouteau County, where Fort Benton is located, has often led the state in winter wheat output. The hard red winter and spring wheat grown here is renowned for its quality, earning a reputation for some of the best wheat in the world. In late summer, it's not uncommon to see this "golden" landscape dotted with combines harvesting amber waves of grain – a scene emblematic of Montana agriculture. Indeed, wheat has been Montana's leading cash crop for generations, and the success of wheat farming in the Golden Triangle has been a major driver of the state's rural economy (in one recent year, Montana's wheat industry was valued at around $2 billion).

Beyond wheat, the Golden Triangle supports a diverse array of crops thanks to its rich soil and innovative farmers. Barley is another staple – Montana is a top producer of malting barley for the beer industry, and many rotations alternate wheat with barley. The region also grows oats and pulse crops (such as dry peas, lentils, and chickpeas) which have surged in popularity over the past two decades. In fact, the northern Plains, including Montana, have become one of North America's largest producers of pulse crops. Oilseeds have a place here too: canola and flax are cultivated in parts of the Triangle, and more recently some farmers have tried camelina and safflower as specialty oilseed crops. The area's farmers also maintain perennial forages like alfalfa hay and sainfoin, which are critical for feeding cattle and other livestock over Montana's long winters. Cattle ranching and grain farming often go hand-in-hand, so having high-quality hay and grazing land is important in the regional farm economy. Fort Benton itself, founded in 1846 as a trading post on the Missouri River, has a rich agricultural legacy. It is Montana's oldest continuously occupied settlement, and in the 19th century it was a vital commercial hub where steamboats brought goods up the Missouri and wagon trains carried supplies out to frontier farms and mining camps. Ever since those homesteading days, agriculture has been the heartbeat of the community. The confluence of fertile prairie soils (often a clay-rich "gumbo"), reliable rivers for irrigation, and rail transportation allowed the Golden Triangle to flourish as a grain-producing powerhouse through the 20th century. Even as farming practices modernized – from horse-drawn plows to GPS-guided combines – the region's identity as a top agricultural producer remained constant. Today, this heritage continues, but with a forward-looking eye: growers are incorporating new crops like industrial hemp into the mix, blending innovation with tradition in Montana's Golden Triangle.

Integrating Hemp into Traditional Crop Rotations

Industrial hemp is the latest crop making inroads into the Golden Triangle's rotation, and it's being embraced as a valuable rotational crop alongside the region's traditional staples. In the past, many farms here followed small grain rotations with periodic fallow years – for example, winter wheat one year, then leaving the land fallow (unplanted) the next to conserve moisture, followed by spring wheat or barley, and so on. Over time, more diverse sequences have emerged, with farmers adding peas, lentils, or oilseeds to break pest and disease cycles and to boost soil nitrogen (in the case of pulses). Now hemp is offering yet another rotation option that can benefit the farming system. According to Montana growers, inserting hemp into a rotation can replace a fallow period or break up a string of cereals, improving overall outcomes. "Instead of having a continuous barley crop or a continuous

wheat crop, we can integrate hemp to help improve yields and quality, and use the land the right way and not have a fallow year," said one Montana farmer who adopted hemp after the 2018 Farm Bill legalized it. This sentiment is echoed by multiple producers: hemp adds diversity and can serve as a rotational "rest" crop for the soil without sacrificing a year of production.

Typical rotations in north-central Montana already include a breadth of crops – for example, a farm might grow winter wheat, then plant dry peas, then spring wheat, then barley, followed by a forage or fallow, etc.. Hemp is now being slotted into these plans. It can follow a small grain or precede one; some growers are finding that hemp's deep taproot and vigorous residue production leave the soil in excellent condition for the next cereal crop. In Pondera County (part of the Golden Triangle), local agronomists noted that "producers are venturing out into alternative crops such as hemp and quinoa," and that adding such diversity could help reduce the reliance on the traditional wheat-fallow cycle. By growing hemp in rotation, farmers aim to break pest and disease cycles that affect grains, improve nutrient cycling, and potentially reduce weeds. Importantly, hemp does not host cereal diseases like wheat rusts or barley blight, so it's a good break crop to clean up fields. It also tends to mature at a different time than grains (hemp is usually harvested in early fall), which can spread out the workload and risk.

Another rotational benefit is in the realm of soil fertility and organic matter. Legumes (like peas or lentils) are often grown to add nitrogen, but hemp can contribute significant biomass. When hemp is grown for fiber, much of its foliage and root mass remains or is returned to the field. Agronomists have observed that after a fiber hemp harvest, the fallen leaves and remaining plant matter act like a green manure, returning nutrients to the soil and building organic matter. "When they're harvesting the hemp for fiber, all of the leaves and nutrients are going back to our soil for our future crops and we're building organic matter," notes Amy Gardner, a Montana agronomist who has worked with hemp in rotations. Farmers are finding that subsequent crops (whether it's wheat, barley, or something else) can benefit from this nutrient return and improved soil tilth. Additionally, hemp's rapid early growth can shade out weeds, potentially reducing the weed seed bank for following crops.

Crucially, hemp is also showing it can be profitable and agronomically adaptable in Montana's grain country. Dalton Wittmer, IND HEMP's agronomist, has highlighted that hemp's adaptability to different soil types and its relatively lower need for synthetic fertilizer (compared to, say, corn) make it attractive to producers, especially when grain prices for traditional crops are low. Farmers appreciate that hemp can generate an income on par with or better than wheat or barley in some cases, helping diversify income streams. One local producer in the Flathead Valley (northwestern Montana) noted that with rising input costs and challenging wheat prices, "it's getting harder and harder to pencil in a wheat crop… It's nice to have some new crops to bring to the valley," and hemp has been a welcome addition to keep the farm profitable. The Golden Triangle's growers share a similar perspective: diversification and learning new markets is key to staying successful, and hemp adds one more crop to the rotation mix that can help spread risk and capture new market opportunities. Importantly, nobody is replacing all their acres with hemp – just as they wouldn't plant the whole farm to a single crop like wheat – but integrating hemp on perhaps 5–15% of acreage can yield rotational benefits without over-concentration. IND HEMP supports its growers with agronomic guidance to ensure hemp fits seamlessly into their specific farm plans. From planting date adjustments (to avoid late spring frost or to time harvest conveniently) to residue management after harvest, the goal is to make hemp a complementary piece of the agricultural puzzle in Montana's grain belt. Early experiences are definitely encouraging.

Agronomic and Environmental Benefits of Hemp in Regenerative Farming

Industrial hemp is often hailed as a regenerative crop, and its introduction into Montana's crop rotations is bringing multiple agronomic and environmental benefits. IND HEMP, as a company, actively promotes regenerative farming practices, and hemp aligns naturally with those principles. Some key benefits of including hemp in a diversified cropping system include:

- **Reduced agrochemical reliance:** Hemp is generally hardy and has fewer major pests compared to other crops, which can reduce the need for synthetic pesticides. It also typically requires modest fertilizer levels. By growing hemp, farmers may decrease their overall usage of chemical inputs on that field. This not only lowers production costs but also lessens the environmental footprint of farming.
- **Enhanced biodiversity and beneficial habitat:** A field of hemp in rotation provides habitat for beneficial organisms. Its dense canopy and flowering nature attract pollinators and predatory insects. This can boost on-farm biodiversity and help with pest control in the broader system. Montana's landscapes benefit from having a variety of crops; hemp fields add to the mosaic that supports wildlife and insects (for example, flowering hemp can be a food source for bees late in the season).
- **Improved soil structure and health:** Hemp's vigorous root system – including a deep taproot and extensive laterals – helps break up soil compaction and improve soil structure. As those roots penetrate and then decay after harvest, they leave channels that enhance water infiltration and aeration in the soil. Hemp also contributes a substantial amount of organic matter through leaf drop and root biomass, which can boost soil microbial activity and fertility. Farmers and researchers have noted improved tilth and water-holding capacity in fields following a hemp crop.
- **Water use efficiency:** Surprisingly, hemp can be efficient with water. While it does need moisture to establish, once grown, its canopy and soil shading can reduce evaporation from the soil. In irrigated systems, hemp's water use is comparable to or less than alternative crops like corn. Additionally, no-till practices combined with hemp residues help retain soil moisture. In a semi-arid region like the Golden Triangle, any crop that maximizes each drop of water is valuable.
- **Carbon sequestration:** Hemp is a fast-growing, high-biomass crop. When cultivated for fiber, it can produce several tons of dry matter per acre. This robust growth means hemp captures carbon dioxide from the atmosphere and stores it in plant tissue. If the fiber and stalks are used in long-lived products (textiles, building materials, etc.), that carbon remains sequestered. Even in the field, returning hemp residues to the soil sequesters carbon into soil organic matter. Estimates suggest fiber hemp can sequester up to 2 tons of CO_2 per acre in a season through its biomass. Integrating hemp thus contributes to climate-friendly agriculture goals.

These benefits illustrate why hemp is considered a soil-conserving, resource-efficient crop in a regenerative farming context. IND HEMP emphasizes that adding industrial hemp into rotations leads to "real improvement in soil health, [the] surrounding environment, and farm productivity" for growers. Early anecdotes from Montana farms support this – growers have reported better soil moisture retention and fewer weed issues after a hemp year, and they appreciate that hemp stubble can protect the soil from erosion (important in the windy northern Plains). Moreover, because hemp is harvested in late summer or early fall, fields are cleared in time to establish cover crops or fall-seeded crops if desired, which can further amplify soil health benefits. In essence, hemp is emerging as both an agronomic asset and an environmental ally. By reducing chemical inputs, supporting biodiversity, healing the soil, and capturing carbon, hemp aligns perfectly with the movement toward regenerative, sustainable

agriculture in Montana. IND HEMP's mission as a company includes encouraging these practices – they recognize that promoting hemp goes hand-in-hand with promoting healthier soils and communities. It's a synergy where what's good for the farm (crop diversity and soil restoration) is also good for the planet. As Montana's farmers adopt hemp, they are not only gaining a new revenue source but also contributing to a more resilient and regenerative agricultural landscape.

Market Outlook

The market outlook for IND HEMP in 2025 is closely intertwined with the season's agronomic trajectory – and at this point, that trajectory is very encouraging. A strong hemp crop will reinforce Montana's reputation as a reliable source of industrial hemp and could stimulate increased interest from processors and buyers looking for U.S.-grown fiber and grain. IND HEMP's presence in Fort Benton has already created a local market for hemp, allowing farmers to diversify their rotations profitably. With 2025 shaping up to be one of the best starts in years, the company and its growers are optimistic that harvest will bring both high yields and high quality, enabling them to meet existing demand and explore new opportunities. From fiber bales destined for innovative non wovens to grain headed for health foods and feed, Montana's hemp fields are poised to deliver. The season is young, and challenges like weather and pests will continue to be managed, but the overall outlook remains positive – 2025 could well be a benchmark year for industrial hemp in the Golden Triangle, demonstrating the crop's viability and value in Montana's agricultural landscape.

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