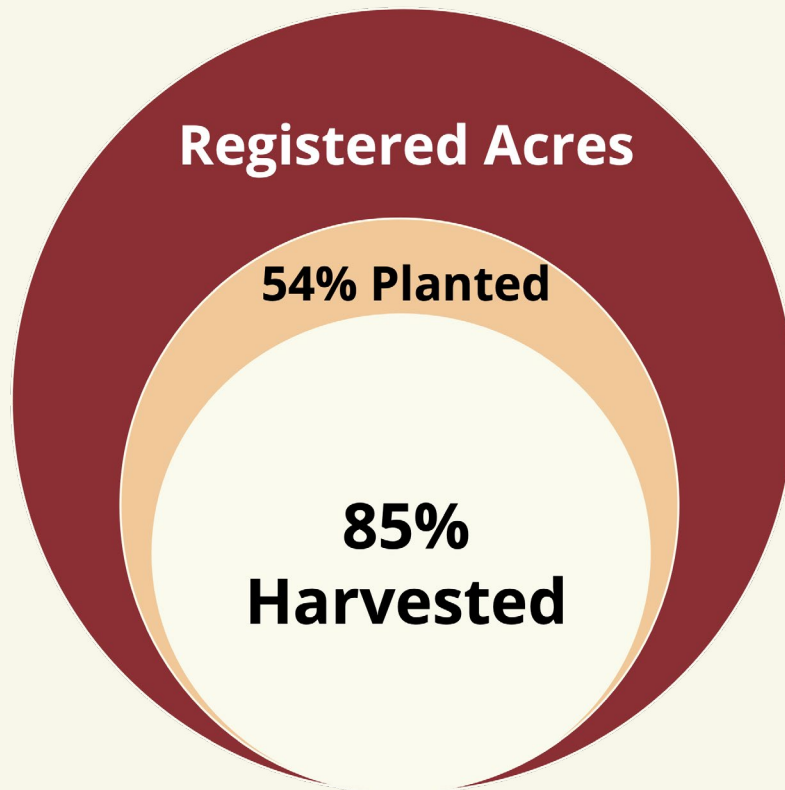


Hemp Benchmarks® Harvest Survey 2021

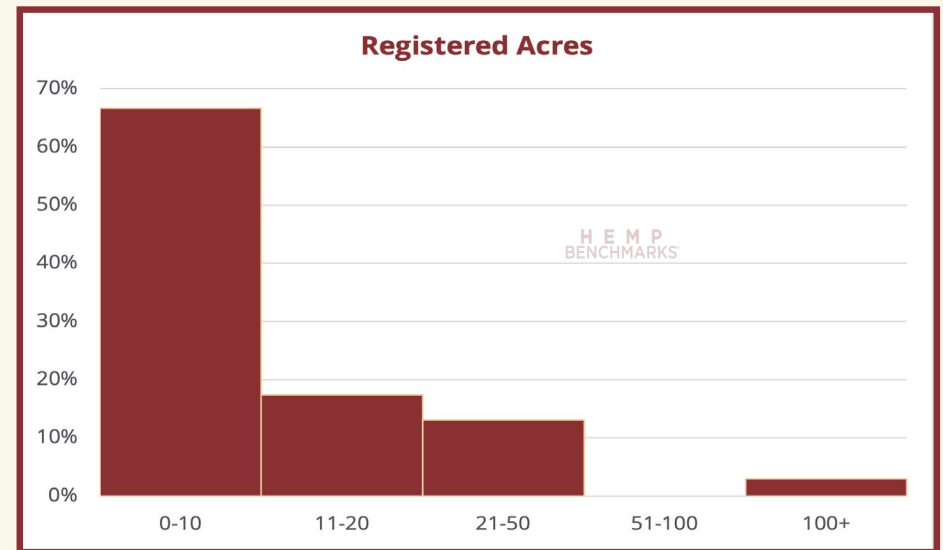
In the wake of the 2021 hemp harvest, Hemp Benchmarks circulated a survey to registered hemp producers. The survey asked growers various questions about their experiences farming and harvesting hemp last year and garnered over one hundred responses. Respondents hailed from almost 40 U.S. states, as well as Puerto Rico, Guam, and several other countries.

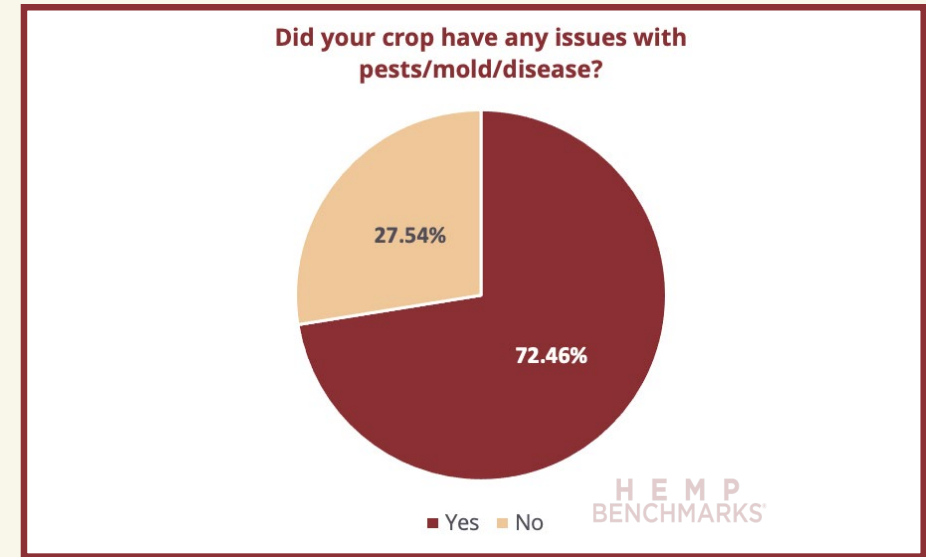
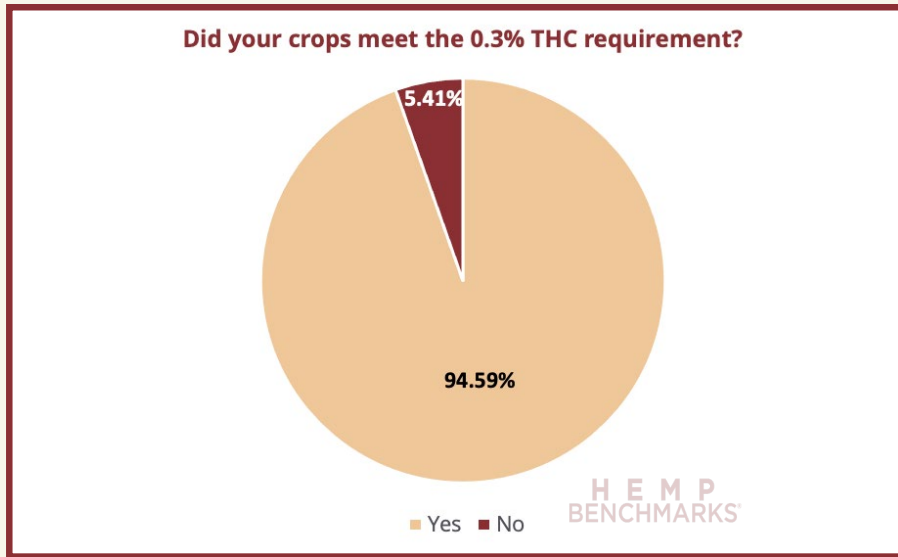


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The majority of respondents reported registering relatively small plots, with roughly two-thirds stating that they registered 10 acres or fewer for hemp production in 2021. The 2021 harvest survey results indicate that those growing hemp last year downsized compared to 2020, when 55% of respondents said that they planted 10 acres or fewer.

Accounts of how much of the acreage registered for hemp was planted and harvested were similar from 2020 to 2021. In those two years, Hemp Benchmarks harvest survey respondents stated that they planted 55% and 54% of their registered acreage, respectively, while they harvested over 80% of their planted acreage in both years. While the proportion of planted acreage that was harvested in 2021 was higher at 85% - compared to 81% of planted acres in 2020 - the significantly smaller amount of registered acreage in the latter year resulted in a contraction of hemp production overall.





Survey results indicate that “hot” crops were less of a problem in 2021, with nearly 95% of respondents stating that their hemp tested below the maximum legal THC threshold of 0.3%. In 2020, almost 10% of respondents reported that their crops tested hot.

Increasingly reliable genetics and greater experience regarding monitoring THC levels and when to harvest certain varieties would presumably work to continue to drive the proportion of hot crops down in future years. However, 2021 saw numerous states retain the research pilot programs authorized by the 2014 Farm Bill, under which some used the threshold of 0.3% delta-9 THC for compliance. Beginning in 2022, every state will need to adhere to the more stringent limit of 0.3% total THC, established by the U.S. Department of Agriculture, which may result in a larger proportion of crops testing hot.

Almost three-quarters of respondents stated that they had problems with various types of pests this season, up significantly from just over 40% in our 2020 harvest survey. The larger proportion of farmers stating that they struggled with pests, mold, and disease issues may have been related to unfavorable weather conditions in many parts of the country at various points in the growing season, from drought to extreme heat to excessive precipitation.

In open-ended responses, weeds were again mentioned as a pest problem, similar to 2020. Unlike most traditional crops, no herbicides are approved for use when growing hemp, leaving farmers the options of manual or environmental weed control, or simply hoping that their hemp outcompetes the weeds.

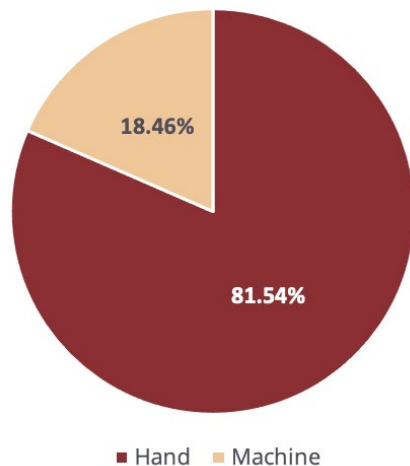
We have over the course of the growing season noted some of the extreme weather and related conditions that impacted U.S. hemp crops. The extreme drought conditions in much of the western

U.S. were among the most frequently-mentioned hardships faced by hemp farmers in 2021. However, a larger number of respondents actually noted that excessive precipitation was a problem that they faced in 2021.

Similar to 2020, high winds were cited as an issue by a significant portion of respondents. Unlike 2020, hemp growers did not face danger from major wildfires in 2021. Accordingly, accompanying problems such as smoke or ash damaging plants were not reported as issues last year.

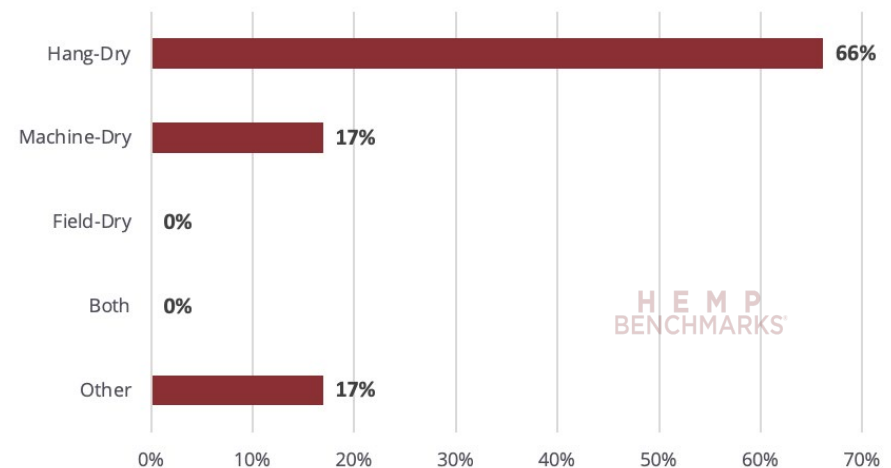
cultivators who reported harvesting by hand in 2021. Roughly two-thirds of respondents stated that they hung their crops to dry after cutting them down in 2021. The proportions of those reporting hang-drying and machine drying in 2021 are essentially unchanged from our 2020 harvest survey.

How did you harvest your crops?



A vast majority of respondents indicated that they are employing low-tech methods for harvesting and drying their crops. In fact, a larger proportion of respondents reported hand-harvesting in 2021, compared to the 77% who said that they did so in 2020. The fact that a larger proportion of growers planted relatively small plots of hemp may have contributed to the larger percentage of

How are you drying your crops?

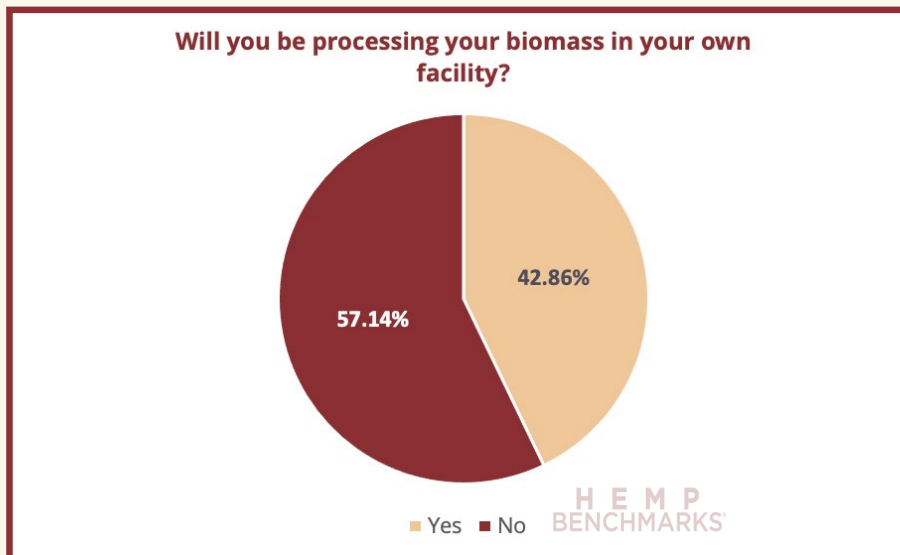
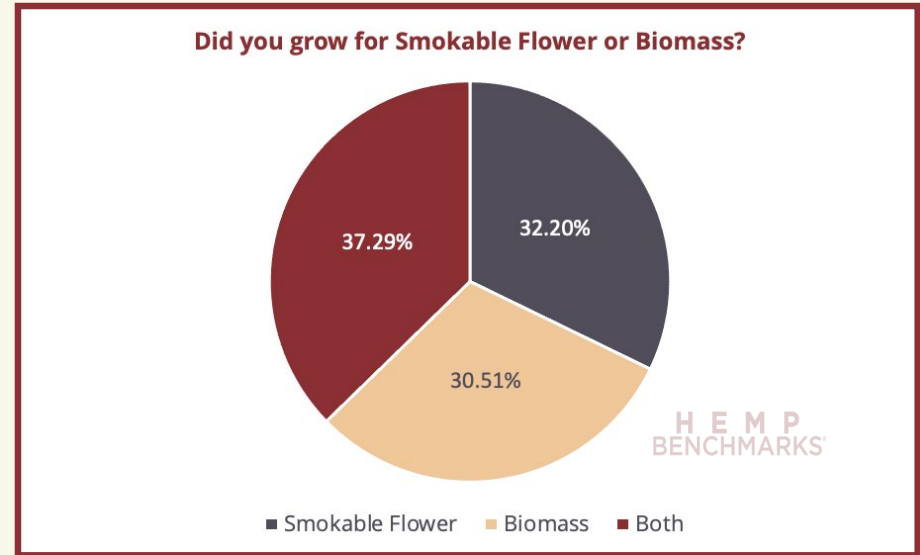


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Over 40% of respondents stated that they will be processing their CBD or CBG biomass in their own facility, up from about 25% in 2020 who indicated that they are integrated cultivation and processing operations. In the course of our reporting, market participants have on several occasions stated to Hemp Benchmarks that they view vertical integration as a preferable business model at this time, due to difficulties that can arise in finding buyers for one's crops.

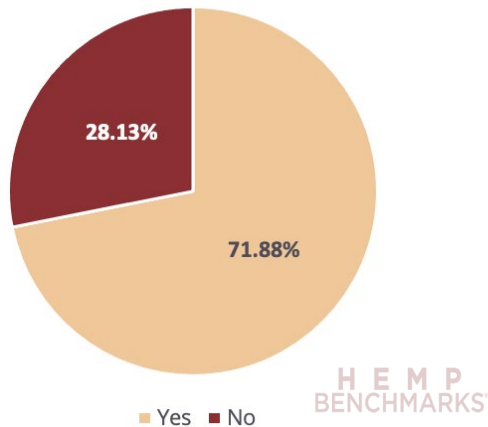
Meanwhile, for those growing hemp for cannabinoids, survey results indicate that a greater proportion chose to specialize in growing for smokable flower in 2021. Almost a third of respondents stated that they grew hemp for smokable flower last year, up from 21% in 2020. Similar percentages of respondents stated that they were only growing for biomass in both 2020 and 2021, at 32% and just under 31%, respectively. The increased proportion of farmers growing hemp for smokable flower only in 2021 was a result of a smaller proportion growing for both smokable flower and biomass, indicating increased specialization amongst cultivators.



In response to the question, “What was the biggest surprise you had growing hemp this season?” answers related to the tough hemp-CBD market conditions were most prevalent, including comments on the persistent biomass glut, low prices, difficulty finding buyers, and even decisions not to plant in light of unfavorable economics.

Another frequently mentioned topic was the inconsistency of hemp genetics, an echo of responses received in our 2020 harvest survey. In 2021, however, low germination rates were not cited as frequently as an issue. Instead, several growers appeared caught off guard by how their plants developed, whether they shot up to excessive heights or did not mature in a timely manner, among other surprises.

Did you have a buyer and/or contract in place for your crop prior to planting?



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