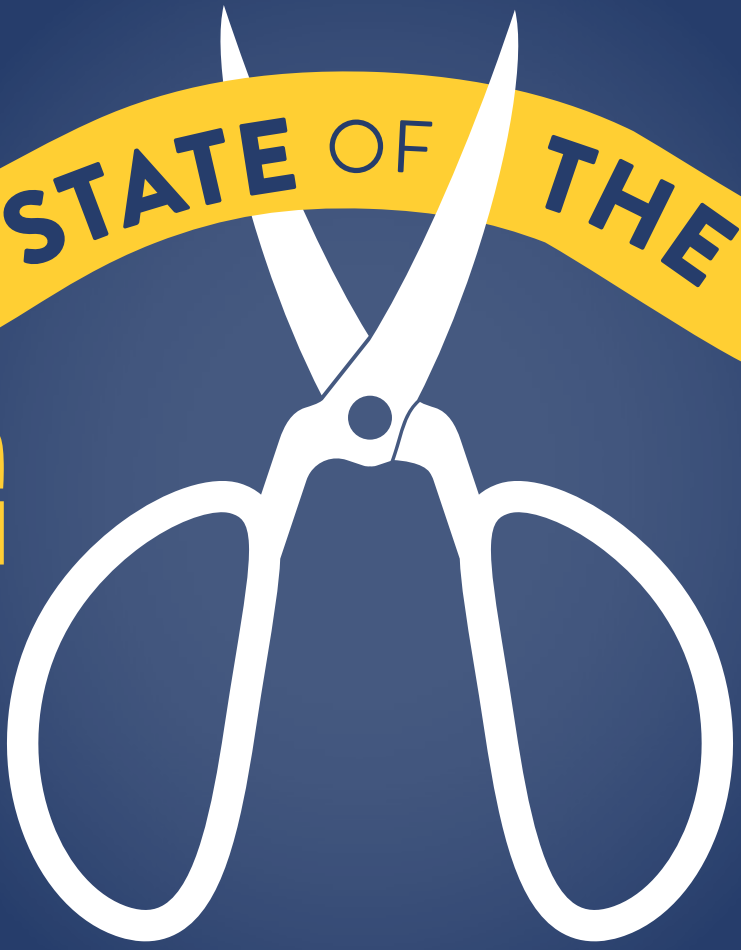
# STATE OF THE TRIMMING MARKET



An exclusive research report examining how cannabis cultivators navigate this challenging post-harvest process.

IN PARTNERSHIP WITH

CENTURIONPRO

CANNABIS BUSINESS TIMES

## EXECUTIVE LETTER

# INDUSTRY STANDARD

As the cannabis industry continues to evolve, and as companies expand and scale operations to meet increasing market demands, leaders must continue to implement efficient and effective practices to remain competitive.

One of the biggest challenges we at CenturionPro hear from cannabis cultivators is their struggles with lowering production costs while cultivating top-notch plants. Many growers are turning to automation to streamline processes in post-harvest, especially when it comes to what can be the most labor-intensive: trimming.

In *Cannabis Business Times*' first-ever "State of the Cannabis Trimming Market Report," which CenturionPro is pleased to support, nearly half (47%) of participants indicated they mechanically trim some of their crop, while more than a quarter (26%) exclusively use machines to prepare their flower to sell whole or for extraction. While there will always be a place for hand trimming, machine trimming is fast becoming an industry standard that more will continue to adopt to meet the demands of growing adult-use markets while still maintaining quality.

Machines are also being utilized in other post-harvest processes, including bucking, drying and sorting. According to this year's trimming research, 11% of cultivators machine-buck cannabis dry and 10% machine-buck plants wet. And, nearly half of participants (48%) noted they are planning to invest in equipment such as machine trimmers, buckers, presses and sorters in the next 12 months.

For operators who trim by hand, the labor costs can be extensive. According to the report, the median amount of cannabis one employee processes in a shift is 2 pounds, and most work 8-hour shifts. By comparison, certain models of CenturionPro machines can process up to 40 pounds of prepped dry product in an hour. If most companies can produce 2 pounds dry per person every 8 hours, then it would take 160 human trimmers to equal the throughput of one trimming machine over the course of the 8-hour shift.

In addition to the research, Primal Cannabis detailed the trimming and bucking practices of their Oklahoma-based medical cannabis company that spans 90 acres, starting on p. S9. In the case study, Primal notes it used to hire, house, and feed a seasonal crew of 120 workers to buck 50,000 plants. The 45-day project ran the company $1.8 million. After more than doubling its plant count this year, Primal sought another solution and decided to implement bucking machines. The decision and the subsequent labor savings made moving to automation a "no-brainer," says Joanna Hamrick, sales manager at Primal.

We hope this research report provides you inspiration and insights that your operation can use to improve and streamline processes, allowing you to produce the best cannabis as efficiently as possible.

**KARL LUNDGREN,**
CENTURIONPRO SOLUTIONS' VP OF MARKETING

HEADSHOT COURTESY OF CENTURIONPRO

# HAND OR MACHINE: A LOOK AT TRIM HABITS

"OF COURSE, THERE'S AN ONGOING DEBATE ABOUT HAND-TRIMMING VERSUS MACHINE TRIM, AND I'M NOT SURE WE'LL EVER SEE THAT DEBATE END."

**-Ryan Cook, executive vice president of operations at Jushi Holdings Inc.**

It can be argued that trimming is one of the most important post-harvest steps, especially for cannabis destined to be sold as whole flower at dispensaries. At the most basic level, a good trim removes stems and excess foliage, creating a clean look while maintaining bud quality. This requires well-trained employees or carefully calibrated machines. Overly manicured cannabis can reduce weights, lose highly prized trichomes and shred a cultivator's bottom line. Cultivators consistently note that trimming is one of the most challenging aspects after a plant completes its growth cycle for reasons including the labor required and mastering consistency and quality.

*Cannabis Business Times*, with support from CenturionPro and in conjunction with third-party researcher Readex Research, took a closer look at this essential and often-debated post-harvest stage by conducting exclusive market research. Companies that cultivate and/or process and extract cannabis provided insights about how they approach trimming and other post-cultivation processes, such as bucking. The study posed questions about whether cannabis growers hand-trim, use machines or employ a combination of both, how many pounds they can trim per day when using humans vs. automation, and if they process cannabis wet or dry. The results are available in the "State of the Trimming Market" research starting on p. S4.

What the data can't explain is why and how cultivators made these decisions, nor can the data resolve the hand-trim vs. machine-trim debate simmering in the industry, especially as more companies scale operations and demand increases in adult-use states. As Ryan Cook, executive vice president of operations at Jushi Holdings Inc., noted in *CBT*'s July 2021 issue: "Of course, there's an ongoing debate about hand trimming versus machine trim, and I'm not sure we'll ever see that debate end." And many participants in the study reported using both methods, with 83% noting trimming by hand and 47% indicating trimming by machine.

But data this year and in the future can help paint a better picture of what is happening inside of cannabis operations. In addition to the research, this special report includes a case study with Oklahoma-based Primal Cannabis, examining how the company, which cultivates on 90 acres, approaches trimming and bucking, and why it modified its processes over the years.

The benchmarking data and case study presented in this report are important to help advance the industry, and will help you make more informed decisions at your company.

SPECIAL REPORT

# SPOTLIGHT ON TRIMMING

In *Cannabis Business Times*' inaugural "State of the Trimming Market Report," research participants indicated they employ a wide range of methods to achieve the post-harvest results they are looking for when it comes to the final cannabis product, whether flower is grown for extraction or sold as bud. A vast majority of cannabis companies that cultivate, process or extract cannabis plants say some of their post-harvest operations involve hand trimming (83%), while nearly half (47%) machine trim as part of the process. The data indicates that many companies do a combination of both; more than half (57%) of cannabis companies hand trim exclusively, and more than a quarter (26%) only use machines.

## Wet vs. Dry

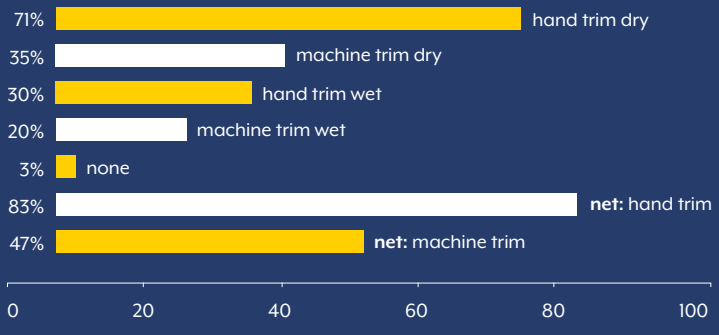
Human or machine is not the only decision operators make when it comes to cannabis trimming. Whether trimmed by employees or automation, more participants noted trimming dry, (by hand: 71%, by machine: 35%) then wet (hand: 30%, machine 20%).

The same pattern continues when reviewing how participants prefer to buck (destem) cannabis plants. Nearly three-quarters (70%) hand buck dried cannabis, while 28% hand buck wet cannabis. A nearly equal number of participants machine buck dry (11%) and wet (10%).

## Extraction

Research participants were somewhat split when asked how they prefer to trim cannabis flower for extraction, with 44% opting for a hand-trim, and 37% using machines. More than one-fifth (21%) of participants indicated they do not trim cannabis for extraction.

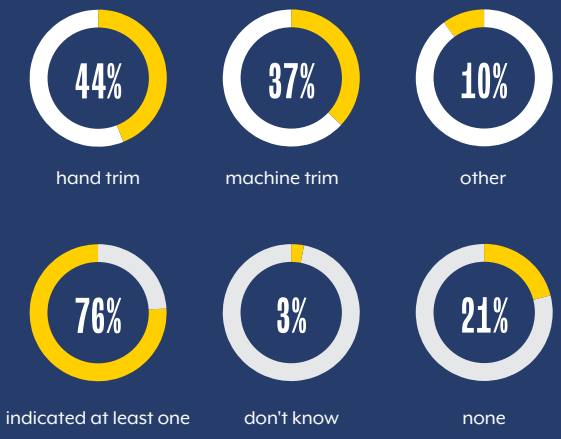
### How does your operation trim its cannabis?




*Base: Those whose operation currently cultivates, processes/extracts cannabis (solely or in combination with other options): 147*

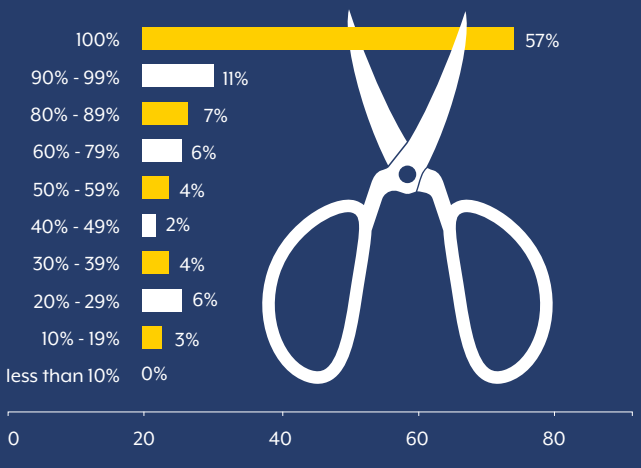
*Note: Participants could select multiple responses; percentages do not add up to 100%*

### How does your operation trim cannabis for extraction, whether you process in-house or outsource extraction?



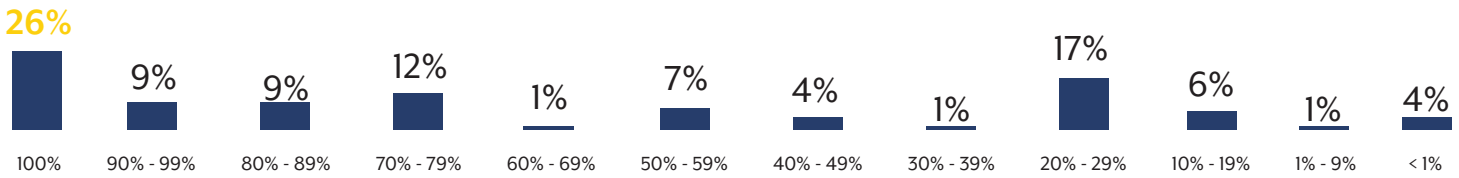

*Note: Participants could select multiple responses; percentages do not add up to 100%*

### Approximately what percentage of your operation's cannabis crop is hand trimmed?




*Base: Those whose operation currently cultivates, processes/extracts cannabis (solely or in combination with other options) and hand trims: 122*

**Approximately what percentage of your operation's cannabis crop is machine-trimmed?**




*Base: Those whose operation currently cultivates, processes/extracts cannabis (solely or in combination with other options) and machine trims: 69*

**How does your operation buck (destem) its cannabis?**

| 70% | 28% | 11% | 10% | 81% | 16% | 8% |
|---|---|---|---|---|---|---|
| hand buck dry | hand buck wet | machine buck dry | machine buck wet | **net:** hand buck | **net:** machine buck | none |

*Base: Those whose operation currently cultivates, processes/ extracts cannabis (solely or in combination with other options): 147*
*Note: Participants could select multiple responses; percentages do not add up to 100%*

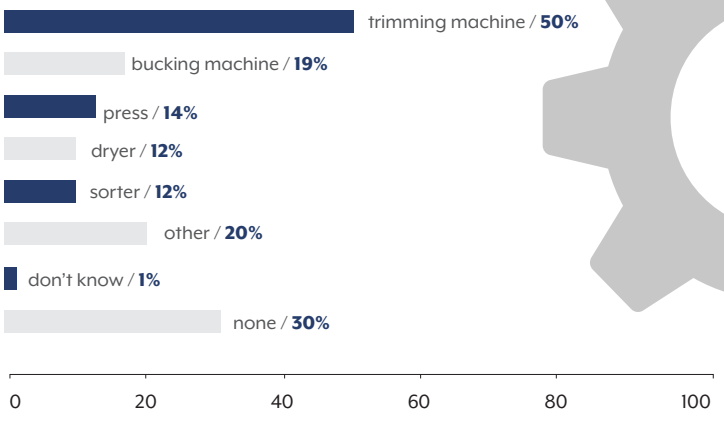
# AUTOMATING THE PROCESS

Many cannabis companies have turned to automation to save on labor costs and increase efficiencies, and this was reflected in responses from CBT's "State of the Trimming Market Report." Half of participants (50%) use trimming machines and 19% use bucking machines, while others have turned to machine presses (14%), dryers (12%), and sorters (12%).

The pivot to automation appears to be on the rise, as 27% of research participants indicated having plans to implement machine trimmers in the next 12 months, while another 16% are considering machine buckers and another 14% plan to invest in either machine presses and/or sorters. Just over 1-in-10 participants (11%) indicated having plans to acquire a dryer.

The amount of cannabis that is machine-trimmed daily is wide-ranging. Of those cannabis operators who use machines to trim cannabis, 12% process more than 100 pounds per day while, at the other end of the spectrum, 43% trim 10 pounds or less. Another 43% fall somewhere in the middle, trimming 11 to 100 pounds per day.

**What equipment/machinery does your operation use to process cannabis?**



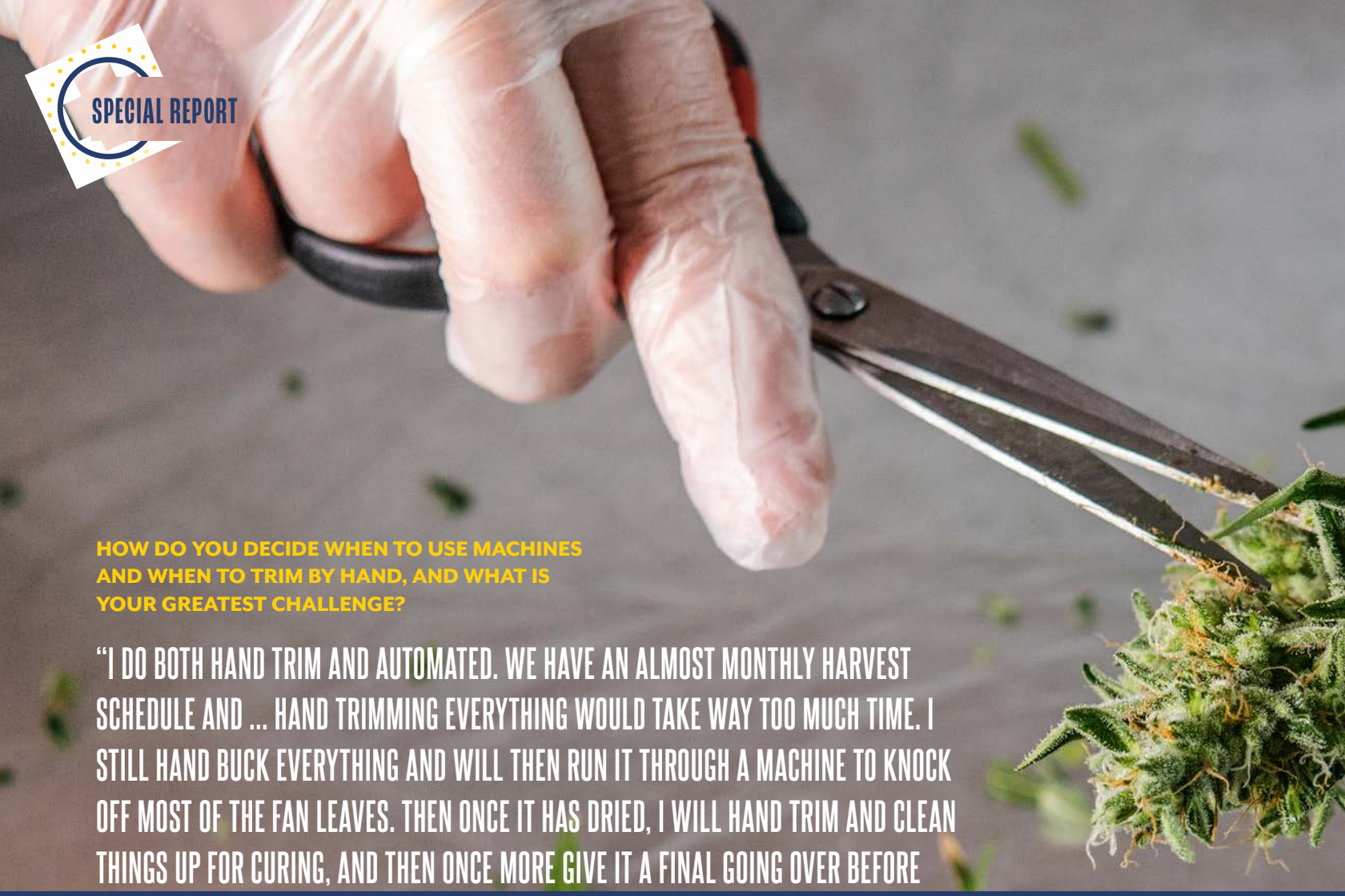

*Base: Those whose operation currently cultivates, processes/ extracts cannabis (solely or in combination with other options): 147*

*Note: Participants could select multiple responses; percentages do not add up to 100%*

**HOW DO YOU HANDLE CANNABIS TRIMMING AT YOUR OPERATION, AND WHAT IS YOUR GREATEST CHALLENGE?**

"WHAT LED TO US [HIRING] OUTSIDE PEOPLE [TEMPORARILY] TO TRIM WAS THE COST OF PUTTING EMPLOYEES ON PAYROLL, FINDING, TRAINING AND GETTING PEOPLE WHO ARE PROFICIENT AT THIS JOB AND KEEPING THEM STEADILY WORKING TO KEEP THEM AROUND, BECAUSE THAT'S THE TOUGH PART—MAKING SURE PEOPLE ARE GETTING ENOUGH HOURS TO LIVE. THE BIGGEST CHALLENGE WITH TRIMMING IS FINDING PEOPLE WHO ACTUALLY DO A GREAT JOB AND ARE PROFICIENT AT IT."

**Daniel Wright, Head Grower and Manager, Happy Healing Farm, Medford, Oregon**



**HOW DO YOU DECIDE WHEN TO USE MACHINES AND WHEN TO TRIM BY HAND, AND WHAT IS YOUR GREATEST CHALLENGE?**

"I DO BOTH HAND TRIM AND AUTOMATED. WE HAVE AN ALMOST MONTHLY HARVEST SCHEDULE AND ... HAND TRIMMING EVERYTHING WOULD TAKE WAY TOO MUCH TIME. I STILL HAND BUCK EVERYTHING AND WILL THEN RUN IT THROUGH A MACHINE TO KNOCK OFF MOST OF THE FAN LEAVES. THEN ONCE IT HAS DRIED, I WILL HAND TRIM AND CLEAN THINGS UP FOR CURING, AND THEN ONCE MORE GIVE IT A FINAL GOING OVER BEFORE PACKAGING. WE WILL BE GETTING A BUCKING MACHINE AND A BIGGER TRIMMER ... THE BIGGEST CHALLENGE IS TIME. ALWAYS TIME."

**-Jim Blauvelt, co-owner, Blue House Farm, Vinita, Oklahoma**

**Approximately what volume of dry weight cannabis does your operation machine trim daily?**

| 1% | 4% | 6% | 9% | 17% | 17% | 43% |
|---|---|---|---|---|---|---|
| more than 1000 lbs | 251 lbs. – 1000 lbs | 101 lbs. – 250 lbs | 51 lbs. – 100 lbs | 26 lbs. – 50 lbs | 11 lbs. – 25 lbs | 10 lbs. or less |

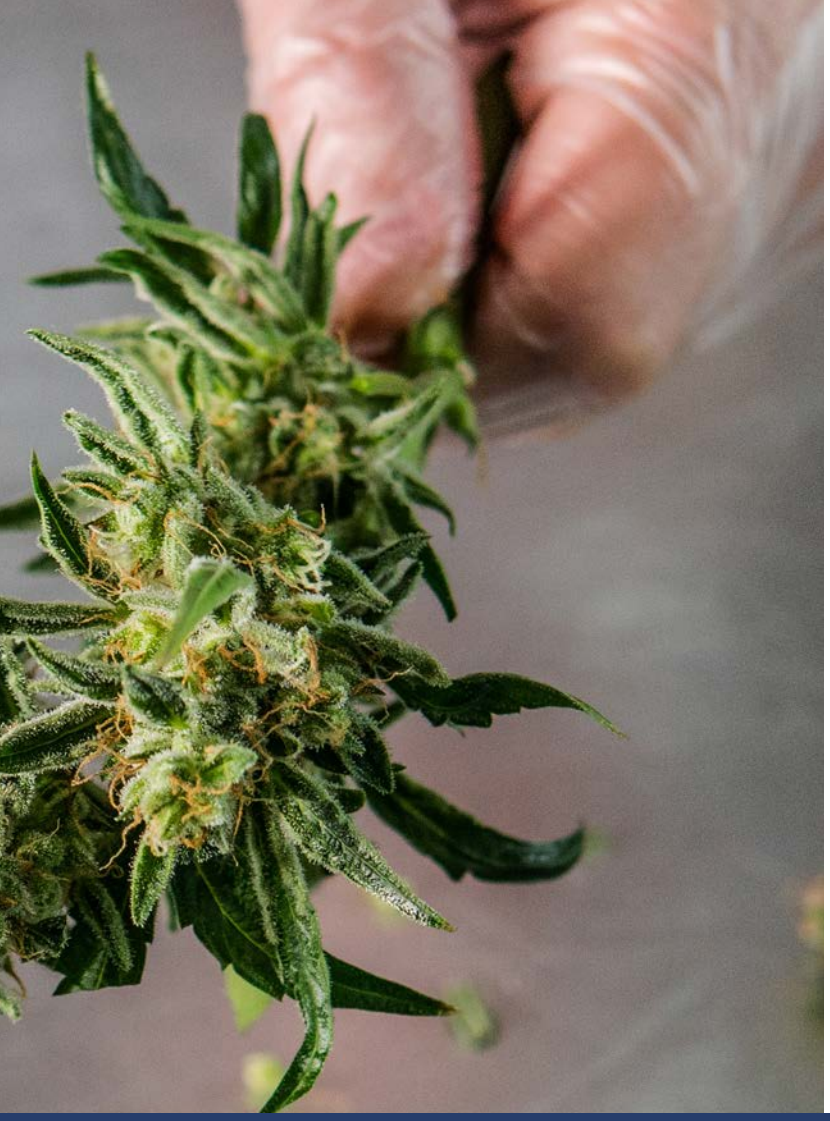
*Base: Those whose operation currently cultivates, processes/ extracts cannabis (solely or in combination with other options) and machine trims: 69*

**Which of the following machines does your operation plan to implement within the next 12 months?**

| 27% | 16% | 14% | 14% | 11% | 5% | 48% | 14% | 37% |
|---|---|---|---|---|---|---|---|---|
| machine trimmer | machine bucker | press | sorter | dryer | other | indicated at least one | don't know | none |

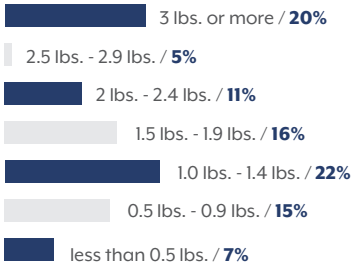
*Base: Those whose operation currently cultivates, processes/ extracts cannabis (solely or in combination with other options): 147*

*Note: Participants could select multiple responses; percentages do not add up to 100%*

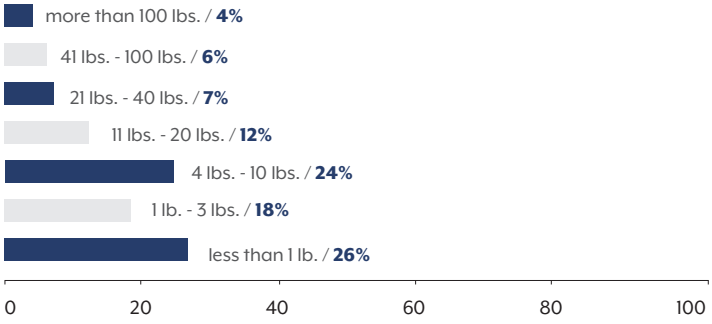


STATE OF THE
TRIMMING MARKET

**Approximately what volume of cannabis are your operation's hand trimmers expected to process during a typical shift?**




**Approximately what volume of dry weight cannabis does your operation hand trim daily?**




*Base: Those whose operation currently cultivates, processes/extracts cannabis (solely or in combination with other options) and hand trims: 122*

# HAND TRIMMING AND **LABOR**

Upfront machine cost and installation is a large investment when automating processes in cultivation or post-harvest. For companies that use hand trimming, labor is generally the largest operational cost (when factoring in other staff). Study results showed that the median amount of cannabis trim staff were expected to process in a typical shift was 2 pounds, and the average shift length reported was 7.3 hours. Many participants (38%) indicated they expect trim staff to process 1 to 2 pounds of cannabis per shift; however, 20% of participants indicated their individual team members are expected to trim 3 pounds or more during a typical shift in their operations. Another 22% said their employees are expected to trim less than a pound per shift.

Most cannabis companies who participated in this year's study noted having 8-hour shifts for trimmers (48%), though 11% work 9 to 12 hours and 36% work fewer than 8.

More than one-quarter (26%) of participants say their entire operations hand-trim less than 1 pound per day, though more information is needed to determine if that's due to staff size or seasonality. A small portion of participants (4%) indicated their trim team processes more than 100 pounds per day by hand.

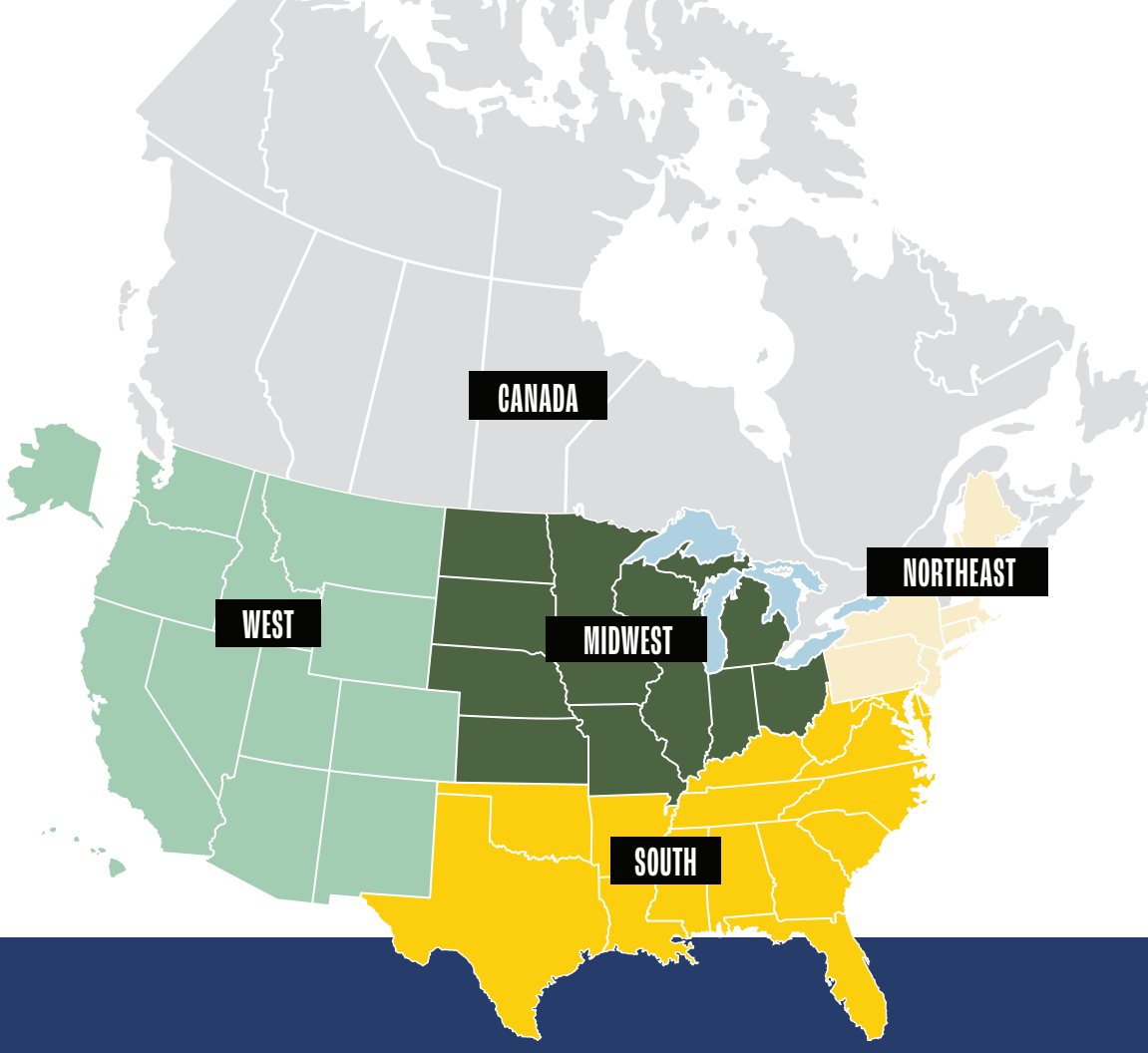
**Approximately how many hours does a hand trimmer work in a typical shift at your operation?**

### Where is your operation located?

- Midwest **15%**
- Northeast **13%**
- South **29%**
- West **38%**
- Canada **4%**

*Base: Those who currently grow/process/extract cannabis or have plans to within the next 18 months: 207; 2% responded "other," "other foreign," or "unknown"*

*Note: Figures may not total 100% due to rounding.*




# ABOUT THE RESEARCH AND PARTICIPANTS

Third-party researcher Readex Research conducted the study and compiled the data for the 2021 "State of the Trimming Market Report." *Cannabis Business Times* sent the study questionnaire to subscribers with known email addresses and/or e-newsletter subscribers located in the United States, Canada or other (unknown) North American locations in May and June 2021.

Unless otherwise noted, 2021 results are based on 147 participants who indicated they own or work for a licensed operation that cultivates and/or processes/extracts cannabis for sale, solely or in combination with other options, in the U.S. or Canada. The 2021 margin of error for percentages based on the 147 participants is approximately ±8 percentage points at the 95% confidence level.

### What is your licensed operation's current involvement (or plans for involvement in the next 18 months) with cannabis?


currently cultivates cannabis


currently processes/ extracts cannabis

*Base: All respondents: 273. Note: Participants could select multiple responses. Participants that indicated they do not cultivate or extract are not part of primary base and not included here.*

### In what type(s) of facility or facilities does your operation grow cannabis?

- **80%** indoors
- **25%** greenhouse
- **34%** outdoors

*Base: Those whose operation currently cultivates cannabis (solely or in combination with other options): 134*
*Note: Participants could select multiple responses; percentages do not add up to 100%*

# HAND-TRIM VS. AUTOMATION

Primal Cannabis moves toward mostly mechanical harvesting, bucking, and trimming to scale its commercial cultivation operation.

**BY BROOKE BILYJ**

As one of the largest outdoor cannabis grows in Oklahoma, Primal Cannabis cultivates 90 acres just outside of Enid, where the family-owned operation has been farming for five generations. Now in its third season of producing medical cannabis, Primal is automating more of its harvest as the vertically-integrated operation continues to grow.

"From day one, we knew that we were too large of a facility to even attempt hand harvesting," says Joanna Hamrick, sales manager at Primal, who advises the operation's grow and harvest techniques. "We hand-bucked and machine-trimmed for the first two seasons, but our bucking and trimming will be automated this season due to us scaling up this year."

After cultivating 50,000 plants last year, Primal tightened its crop spacing and reoriented its rows—more than doubling its production to 103,000 plants. To get all this flower from the field to the dry-and-cure room more efficiently and cost-effectively, Hamrick says, "we're going into full automation."

## CONTROLLING POST-PRODUCTION COSTS

So far, Primal has been using a mix of manual labor and machines to harvest cannabis. But as the operation grows, it's difficult to bring in enough hands to buck, which involves removing usable biomass from the stalk.

"For the first two seasons, we had to rent an entire hotel for approximately 120 employees to come in for harvest," Hamrick says. "It was very labor-intensive."

In addition to the cost of compensating seasonal workers, Primal also had to coordinate housing, transportation, and meals for the duration of the temporary employees' 45-day contracts—which added up to about $1.8 million.

"After looking at what it cost us to bring in seasonal workers, switching over to automated bucking seemed like a no-brainer," says Hamrick, who is also a board member for the Oklahoma Cannabis Industry Association. "We decided we'd rather invest in the asset and not the yearly labor costs."

Although Hamrick won't know the return on Primal's automation investments

Primal will dedicate 10% of this year's harvest, or about 6,000 to 10,000 pounds, to whole flower, which is machine trimmed.

"FOR THE FIRST TWO SEASONS, WE HAD TO RENT AN ENTIRE HOTEL FOR APPROXIMATELY 120 EMPLOYEES TO COME IN FOR HARVEST."

**-JOANNA HAMRICK, SALES MANAGER, PRIMAL CANNABIS**

PHOTOS COURTESY OF PRIMAL CANNABIS

until this season plays out, she says the company expects to see significant savings of at least $1.3 million. "We thoroughly believe that automation will greatly reduce our labor costs," she says, "which will help bring down our cost of production."

## STREAMLINING THE HARVEST

This season, Primal's year-round crew of a dozen employees will run a fully mechanical harvest, using a modified combine harvester, bucking machines, and wet trimmers to get flower to the drying rooms as soon as one day after plants leave the field.

Hamrick and her team expect this automation to significantly streamline their harvest. "We're still planning on the same six- to eight-week harvest time," Hamrick says. "But instead of working around the clock, we'll be harvesting batches once a week, so we should be able to do it without seasonal employees."

One potential implication of automation could be harvesting so quickly that you run out of room to dry it all, Hamrick says. Down the road, Primal may consider increasing its drying space—which currently consists of 10,000 square feet, plus an additional 20,000 square feet for a temporary, 14-day dry after harvest, which is half the company's typical drying time.

In the meantime, Primal is staggering harvests by growing 22 different cultivars, with maturity dates that range between seven to 11 weeks.

"If we can stagger it successfully, like we plan to do this year," Hamrick says, "then why spend the money expanding the dry space?"

## DRIED FLOWER VS. EXTRACTION

Even at an automated operation like Primal, hand trimming still has a place in cannabis cultivation—especially "if the flower is the end product that you're selling to dispensaries," Hamrick says. In fact, a big factor in Primal's decision to move toward full automation was the simultaneous decision to focus on extraction rather than dried flower—a balance that the company is constantly tweaking.

When Oklahoma launched its medical marijuana program in 2019, Primal devoted 80% of its cultivation to dried flower because, Hamrick says, "pound price is higher in the first year of a new cannabis market." The other 20% of Primal's initial cannabis product underwent $CO_2$ extraction in its processing facility to produce full-spectrum oils.

In 2020, that product mix veered to a 50/50 split of flower and extract. This year, Primal plans to shift the balance toward extraction—nearly 90% of its harvest is headed to the processing facility. Hamrick says they're venturing into butane hash oil (BHO) extraction this year to make high-potency distillate and concentrate waxes like sugar, diamonds, and batter, and also "working on solventless products with a rosin press."

The other 10% of cannabis, which is destined for dried flower sales, will get some special treatment. Before the combine goes through the field, Hamrick says, "We will take the top colas via hand harvesting, which we have not done before." After the colas run through the trimming machines,

Left: While Primal is mostly automating the outdoor harvest, cannabis grown indoors will still be harvested by hand.
Right: An overview of the Primal Cannabis property, which includes 90 cultivated acres near Enid, Okla.

Hamrick says the team will touch up the buds with hand trimming, if necessary. The company has 30 trimming machines on site, and Hamrick says automating that step has been "way more efficient" and makes sense for an operation of Primal's size.

Additionally, Primal recently converted a propagation building into a 30,000-square-foot indoor grow. "We have only pulled down one harvest so far," Hamrick says, explaining that manual harvest was the only choice indoors, because the field harvesting machine, which is roughly 14 feet by 16 feet, doesn't fit inside. "We hand-harvested and machine-trimmed that crop, with plans to do touch-up hand trimming after the dry-and-cure phase we're currently in."

## SEASONAL CHANGES

Hamrick says that the result of this season's hand-harvesting experiment will inform Primal's decisions in future—like whether to increase indoor cultivation space or further shift its product mix.

"It costs a lot more to hand-harvest because it's way more labor-intensive," Hamrick says. "So, we'll see, when this product hits the market, if we can get the dollar amount that we need out of it. If it seems worthwhile to hand-harvest, then we'll have to increase our manpower."

The balance between manual labor and automation is constantly shifting as Primal scales its operation. With the goal of controlling costs and maintaining quality as the company grows, Primal's cultivation team continues to adjust every season to maximize efficiency.

"It's a major investment, even for experienced agriculturalists like Primal, to go all in on automation over manual without knowing for sure how it will turn out and which technologies will work best," Hamrick says. "As with most cultivators in Oklahoma, we're learning as we go, and we're excited to see the outcome." ●


CenturionPro
Dry Batch
Trimmer
Model 3

# WITNESS THE RISE

CENTURIONPRO

## RELIABLE • INDUSTRIAL • SIMPLE • EFFICIENT

GROW LIGHT CENTRAL
TOP TRIMMING MACHINES
CENTURIONPRO
BEST WET & DRY TRIMMING MACHINES
2020

TRIMLEAF.COM
BUYER'S GUIDE
CENTURIONPRO
BEST GENTLE CUT & HIGH CAPACITY BUCKERS
2020

TRIMLEAF.COM
BUYER'S GUIDE
XL TRIMMERS
BEST BUD TRIMMER COMMERCIAL-SCALE PRODUCTION
2020

**SCAN QR CODE**
**WITNESS THE RISE**

10 YEAR WARRANTY · SIEMENS · Lenze · BUTLER PRODUCTS · SEW EURODRIVE · BALDOR MOTORS AND DRIVES · ABB · ROACH CONVEYORS · Health Canada · Santé Canada · FDA U.S. FOOD & DRUG ADMINISTRATION