The Advantages of Softrim™ and the Single-Piece-Flow Process

The patent-pending Softrim™ de-leafing technology was developed by manufacturing engineers outside of the cannabis industry. Their focus was to industrialize the process and build production bud trimmer equipment that matched hand-trim yield and quality, but at a much higher speed.

During their research and development, they also learned that the cannabis industry had several different post-harvest practices, most founded on one of two approaches: batch processing and single-piece-flow processing.

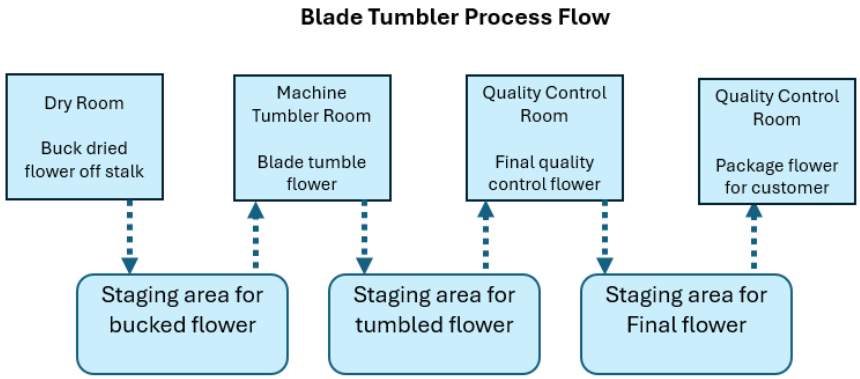
This paper provides their analysis of the most cost-effective of these approaches, and the advantage of Softrim technology when integrated with it.

Batch Processing Method

The agricultural industry typically uses batch processing for bulk goods. In the case of cannabis, volume manufacturers buck dried product into a tote, which gets staged in a room for trimming. A tote is then selected, opened, and the bucked flower placed into a blade drum tumbler. Here the outside edge of the flowers on the outside edge of the drum gets trimmed first and the inside material randomly waits to get trimmed last. When all of the material is trimmed the process ends. As a result, some of the material is unnecessarily trimmed repeatedly.

Random Manufacturing

At that point, the trimmed flower material is stored in a tote. Finally, the tote is transferred to the hand trimming room, where the flowers are sorted and manicured for final quality control (removing all remaining sugar leaves, crow's feet ,and stems). The final product tote is then staged in a room until retrieved to fulfill a customer order.



What is Homogenization and Why Does It Occur in Batch Processing?

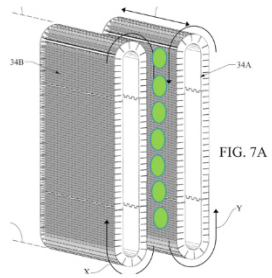
While the cannabis hangs in the dry room in advance of bucking, the thin sugar leaves become brittle, containing approximately 10% moisture content. At the same time, the inner-core bud has around 12-14% moisture content.

However, once the dried flower is placed into a tote and a lid attached, a process called homogenization occurs. This is where the 10% moisture-content sugar leaves start to absorb the 14% moisture from the core of the bud. Depending on when the tote is pulled from the staging area, the sugar leaves and buds in the core center of the tote will have a different moisture content than the product on the outer edges of the tote. The result is inconsistently dried flowers, many with tightly coupled leaves. These leaves are difficult to remove by hand and take a great deal of time to manicure to a final product.

Single Piece Flow Processing

After studying the two alternative trim processes, Softrim engineers chose to develop a highly reliable, high-volume single-piece-flow approach to cannabis trimming. Such a process provides every individual flower the same treatment, allowing the grower to achieve – or exceed – hand-trim quality using an automated bud trimming process. (Note: on demand, Softrim can be integrated with batch processing, but results are optimal with single piece flow.)

First, plants are hung upside down in a controlled humidity-and-temperature dry room for 7-12 days. Next, the Softrim cannabis trimming machine is brought directly into the dry room. At this time, the humidity is turned down by 5% (if the facility is drying at 55%, at this point the facility would drop the humidity to 50%). This maintains the appropriate dryness in the room, compensating for the moisture that the staff introduces by entering and exiting the room. As the staff bucks flower off the stock to fill totes, they then deliver the totes directly to the incoming funnel of a Softrim machine placed inside the dry room. In this way, Softrim uses a linear single-piece-flow philosophy, rather than the randomly selected totes used with blade tumblers.




Linear Single Piece Flow

With Softrim, the bucked flower is pulled into the processing area by the thousands of engineered silicone fingers on the belts. This ensures that each flower gets the same treatment as it travels linearly through the Softrim machine. The average processing time to deleaf one pound of flower is 20 seconds, so an average 6-pound tote takes two minutes to de-leaf.

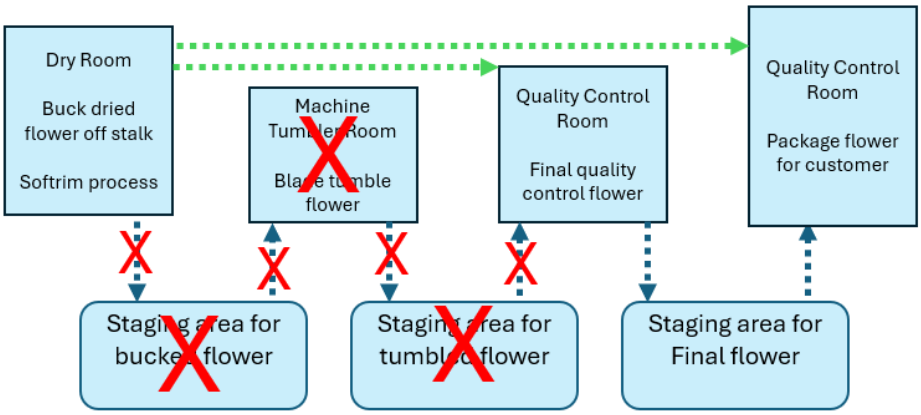
With most strains, and with proper humidity control, the Softrim process is capable of producing nearly ready-to-package flowers. In some

implementations, customers have achieved 90%-plus salable product, with only about 10% of the flowers requiring post-Softrim quality control; which largely depends on the quality of hand bucking.

In Summary

While each cultivation facility has slightly different practices, Softrim can work with its customers to reduce process steps. As shown below, the Softrim process coupled with the single-piece-flow process yields reductions in floor space, floor traffic, labor, and a decline in product tracking tasks.

Softrim Single Piece Process Flow



For more information or to have a Softrim consultation to review your manufacturing process, please contact us at: www.softrimusa.com.