

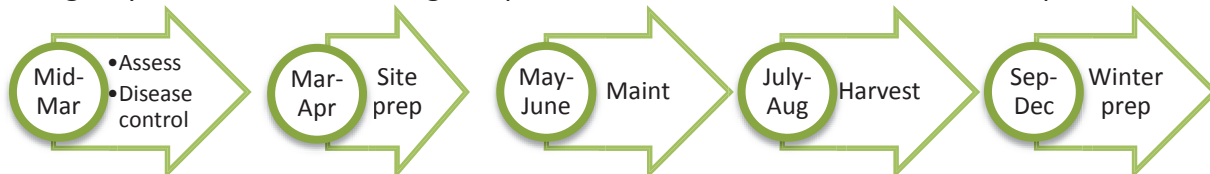


## Executive Summary

Hannigan Honey Inc is a Shellbrook, Saskatchewan family owned and managed honey farm. From humble beginnings in 1940 with a single hive, it's grown into 4800 active colonies on 130 sites. Producing 800,000 lbs of honey per year, most of which is exported to the US or overseas, it is a sustainable business for years to come.

As happens with many growing businesses, some of Hannigan Honey Inc.'s current processes have become inefficient, time-consuming and not practical. Over time, some have become constraining, some output inconsistent honey and many require manual workarounds.

The standard activities of a bee farm are below and span most of the year. But there are always emergency situations like flooding and predator control that need immediate, rapid action.



In early spring, the season begins with assessment of the sites and disease control followed by preparation of new sites, relocation of wet sites and monitoring of growth progress, food supplement and environmental factors that may impact production volumes. Each one of these tasks is beleaguered by inefficient processes. Difficulty accessing the sites in spring snow and mud, long waits for lab results prevents proper disease control, manual clearing of new sites, unnecessary trips to healthy bee yards while not attending unhealthy sites due to the unavailability of adequate information.

The honey harvest period is short, eight weeks in July and August giving rise to a busy, busy time. Once it starts there can be no downtime so the right systems and processes must be in place. Rapid access to bee yards is crucial and hives need to be harvested regardless of the site conditions. The existing equipment and vehicles, however, are inadequate.

The mixture of honey and bees wax is extracted from the honey combs and separated into two individual unique end products. However the processes past extraction pose some trouble and the required quality cannot be obtained and maintained. The separators cannot process large chunk of the mixture so melters are used to remove as much honey as possible however the high heat consistently burns the honey creating a lower grade dark honey. There's difficulty removing moisture from the honey, inconsistent moisture content per batch and too much foam in the holding tanks. The ideal settling time is 48 hours, however during peak harvest is sometimes down to 6 hours. These issues require skimming foam from the drums, partial filling of drums and mixing of drums with varying moisture content.

And finally moving fully loaded pallets and full drums in the warehouse, loading full drums into overseas containers, accessing the processing facility, cleaning drains, filling retail size



containers and handling wooden brood frames all consume hours of manual labour that can be reduced with the proper equipment and systems.

The ideal future state for Hannigan Honey Inc is efficient, streamlined, fluid and cost effective. By eliminating non-value added tasks and turning them into productive processing, the future state environment is conducive to increasing sales to Japan, increasing the number of colonies, and effectively handling the robust harvest expected in the next few years.

To close the gap between the current and future states for Hannigan Honey Inc, the recommended improvements and the criteria by which they were evaluated are the following table.

	Automation	Process Improvement	Technology Adoption	Efficiency ↑	Quality ↑	Throughput ↑	Labour ↓
Remote Hive Monitoring	√	√	√	√			√
Apiculture Lab		√		√			√
Kawasaki Mule Pro FXT		√		√			√
Kawasaki Teryx		√		√			√
Tractor/Truck		√		√			√
Clark WPX45 Electric Pallet Jack	√	√		√			√
Cook & Beals Wax Separator, Moyno Pump		√		√			√
Tanks, Mixers, Dehumidifiers	√	√	√	√	√		√
Ridgid Drain Cleaner K7500	√	√		√			√
Mann Lake E-Z Fill System	√	√	√	√		√	√
Paradise Wax Press P500		√	√	√	√		
Vestil Forklift Mounted Barrel Rotator		√	√	√			√
Pierco Plastic Integrated Frame System		√	√	√			√
Cat TH407C Telehandler		√	√	√		√	√
Roadway		√		√		√	√