



LEAF

D A T A S Y S T E M S

POWERED BY MJ FREEWAY

Leaf Data Systems

State of Washington

Testing Laboratory User Manual v1.37.5

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Introduction to the Seed to Sale Process

Before beginning to explain seed to sale processes, it is imperative to define key terms relating to the data for the industry in Leaf Data Systems.

Definitions

Areas mean the physical location at a licensee facility where a plant or product is located.

Batch is a term used to group plants and product with identical attributes together. (See also *plant batch*, *harvest batch*, and *intermediate/end product batch*)

Card Reg. Number represents an employee id number that may be issued by a licensed facility to its employees, and is used for record keeping purposed; this is not a required field.

Conversions are an inventory transaction where the input of one inventory type can yield the output of an additional inventory type, resulting in the appropriate inventory levels being incremented/decremented accordingly; additionally, associated waste weight relative to the conversion may be recorded.

Destructions are records that represent the weight to be destroyed related to a harvest batch, plant, or inventory lot; upon creation of a destruction record, a related inventory lot is created to represent the physical material to be destroyed, allowing the destruction material to be quarantined for the mandatory 72-hour hold period prior to physical destruction.

End Products are a type of inventory produced by a Processing Facility from intermediate products, to include the subcategories of liquid edible, solid edible, concentrate for inhalation, topical, infused mix, packaged marijuana mix, sample jar, usable marijuana, capsules, tinctures, transdermal patches, and suppositories; end products may be transferred to Retailer Facilities for sale to consumers.

External ID is a flex-field used to cross-reference naming conventions/additional data relative to the associated record when data is acquired via API from a third-party business management software vendor.

Global ID means a unique identifier that is assigned to every line item record within Leaf Data Systems.

Harvests mean the event during which a particular harvest batch is culled, weighed, and documented as harvested material.

Harvest Batch means a plant or group of plants of the same strain that have been harvested; harvest batches may contain all or part of any plant batch, and can also include plants from differing plant batches as long as they are the same strain; a harvest batch is 'closed' once all of the dry weight of the batch has been 'finished' into inventory lots.

Harvest Materials represent the flower and other material produced from a harvest.

Immature Plants are a type of inventory including plants that are in their propagation phase, which are tracked as inventory. (See also *Propagation Material*)

Initial Inventory is defined as inventory entered upon implementation of Leaf Data Systems representing current on-hand inventory at licensed facilities.

Intermediate Products are a type of inventory that is produced at a Processing Facility, to include the subcategories of marijuana mix, non-solvent based concentrate, hydrocarbon concentrate, CO₂ concentrate, ethanol concentrate, food grade solvent concentrate, and infused cooking medium; intermediate products are used to produce end products, but cannot be transferred to a retailer until they are converted to their end product state.

Inventory Lot means the flowers, leaves, or other plant matter from one or more marijuana plants from the same harvest batch, or the creation of inventory related to an intermediate/end product batch.

Inventory Transfers are the documented event logging the transport of marijuana or any related products from one licensed facility to another.

Inventory Types represent the concept of inventory lots that will exist at a licensee facility, whereas the inventory lots represent the physical inventory on hand of a given inventory item.

Lab Results are the record entered by testing laboratory facilities that provide quality assurance analysis for marijuana products.

Licensee means a production facility, a processing facility, a retailer facility, a producer/processor facility, a licensed transporter, a co-op, or a tribe.

Manifest refers to the documentation for the purposes of transporting marijuana or related products and contains the data from the inventory transfer record.

Marijuana means the dried leaves and flowers of a plant of the genus *Cannabis*.

Mature Plants are an inventory type which includes living plants that have been converted to inventory; plants must be converted into inventory prior to being added to an inventory transfer.

Plant is defined as any marijuana plant that is in the vegetative or flowering phase, but not yet harvested.

Plant Batch means a plant or group of plants of the same strain.

Processing Facility means a licensed facility in which marijuana plant extractions and infusions take place.

Production Facility means a business that acquires, possesses, cultivates, delivers, transfers, transports, supplies or sells marijuana.

Propagation Material refers to marijuana plants that are in the propagation phase, to include seeds, clones, and tissue cultures; propagation material is tracked as inventory until the plants reach their vegetative phase, at which point they are converted into living plant records. *(See also Immature Plants)*

Retailer means a business that acquires, possesses, supplies, sells or dispenses marijuana or related supplies and educational materials to medical marijuana patients and/or retail marijuana consumers.

Sale means a record of the transaction occurring upon dispensing of marijuana from a licensee to a patient/customer.

Strains represent a specific sub-species of any plant of the genus *Cannabis*.

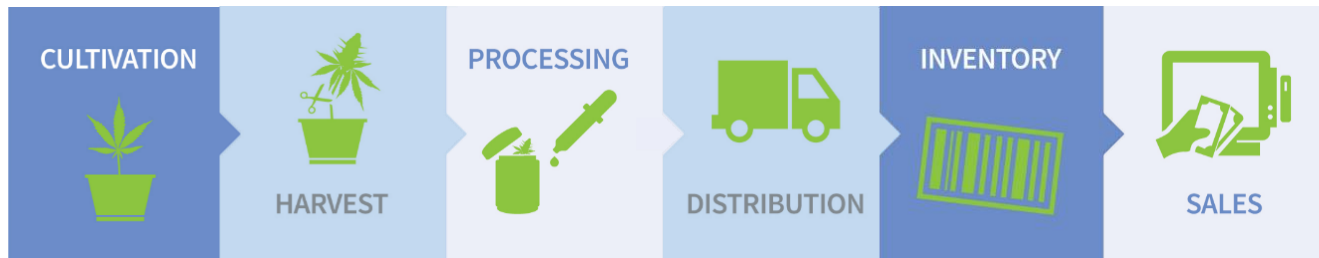
Testing laboratory means any independent QA laboratories to test marijuana, edible marijuana products and marijuana-infused products that are to be sold.

User means any individual from or affiliated with the WSLCB, as well as any individual from or affiliated with any WA licensees who have a profile created for access within Leaf Data Systems.

The Plant to Product Life Cycle of Marijuana

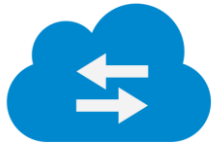
Plant propagation via seed, cuttings, or tissue culture begins at the Production Facility, where all living plants and propagation material are tracked throughout their growth phases. They progress from propagation material (immature plants) to their vegetative and flowering, or "growing" stages (mature plants). Upon harvest, weights are gathered which represent the flower and other material being produced, and continue to be entered as product dries to include finished product, trim, and waste weights. Samples of flower and other material are sent to a Testing Laboratory where the required testing can be performed. While product samples are undergoing lab testing, the remaining lots of the associated product remain quarantined until passing test results have been entered by the Testing Laboratory.

Once harvest batches have been released from lab quarantine, packages in the form of inventory lots may be transferred to Processing Facilities in order to undergo extraction and infusion processes. Processing Facilities process the usable marijuana for sale, or extract the cannabinoid compounds from the plant, which can then be packaged for sale directly as concentrated cannabis for inhalation, or processed into marijuana-infused products. Again, samples are sent to a Testing Laboratory for final testing prior to being transported to Retailers to be distributed to consumers.



Understanding How the Data is Captured into Leaf

Application Programming Interface (API)



Testing labs who currently utilize business management software provided by a third party vendor to manage their lab results are able to integrate their existing system with Leaf Data Systems via an Application Programming Interface (API). An API is a set of requirements that governs how one application communicates with another; a tool, or library that assists developers in writing code that interfaces with other software. MJ Freeway’s API details for Leaf Data Systems are available for any software company to utilize for their clients’ benefit.

LEAF DATA SYSTEMS State Of Washington

Data Entry ▾ Reports ▾ History ▾ API ▾ Users ▾ global id GO ?

TEST Valerie @ QA Grower/Processor (cultivator) ▾

API Test

API

Special Functions

- area ↓+ ✎ 🗑
- batch ↓+ ✎ 🗑
- customer ↓+ ✎ 🗑
- disposal ↓+ ✎ 🗑
- inventory_type ↓+ ✎ 🗑
- inventory ↓+ ✎ 🗑
- inventory_adjustment ↓+ ✎ 🗑
- inventory_daily_history ↓+ ✎ 🗑
- inventory_transfer ↓+ ✎ 🗑
- lab_result ↓+ ✎ 🗑
- mme ↓
- plant ↓+ ✎ 🗑
- sale ↓+ ✎ 🗑

RQ

type	method	url
json	GET	

email	password	api_key	mme_code

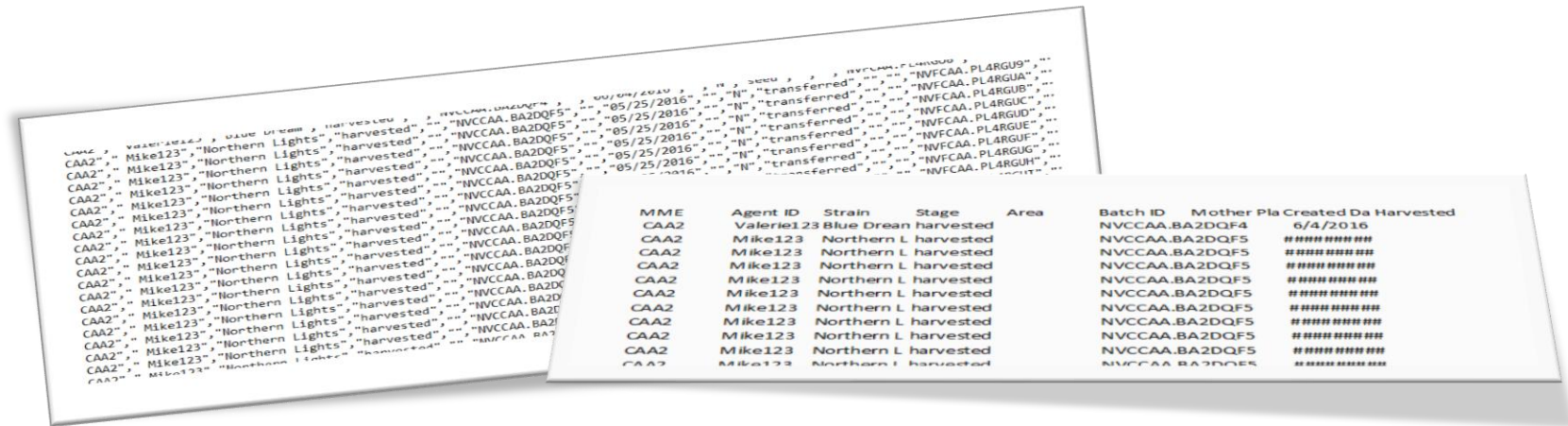
data

run

CSV Uploads



If API integration is not a possibility, testing labs can utilize the data upload feature using CSV (comma-separated values) files. A CSV file is a common format for data exchange that is widely supported and is useful for transferring tabular data between programs that operate on incompatible formats. The graphics below depict how CSV information would look if displayed via MS Notepad (left graphic) as well as MS Excel (right graphic), however, many variations of CSV files exist. Leaf Data Systems provides a template as a guideline for proper formatting of CSV files for any data to be uploaded.



Manual Data Entry



Testing labs who choose not to utilize API integration capabilities or data upload tools have the option of manually entering each line item of data to be captured. Leaf Data Systems’ data collection forms allow field by field detail entry for each piece of information that must be recorded.

Site Navigation

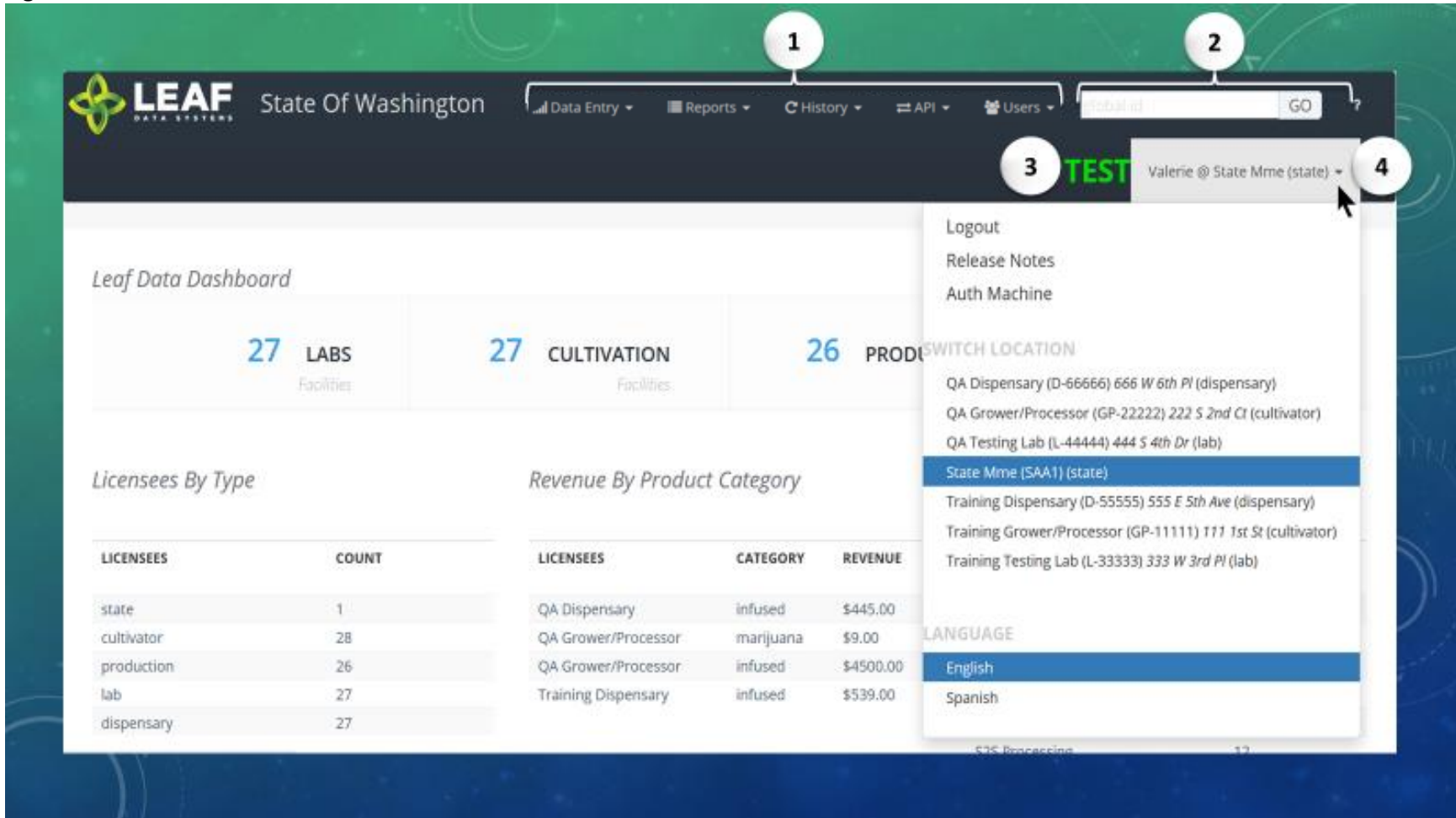
Logging In

Anyone at a business using Leaf Data Systems directly (without a third party provider) must have a Secure Access Washington (SAW) account and a unique email address. SAW is a single-sign on application gateway used by the state of Washington to simplify access to internet-accessible government services. Businesses that use a third party software provider will also need to access Leaf Data Systems directly at least once, and therefore must have a system administrator with a SAW account too. SAW works like a key to your office building. Create a SAW account by visiting: <https://secureaccess.wa.gov/public/saw/pub/displayRegister.do>

Once your SAW account has been created, and your licensed facility administrator has created a user profile for you in Leaf Data Systems, navigate to <https://traceability.lcb.wa.gov> to login to the system.

Menus

Figure 1.4



1 Main Menu – enables navigation to the various areas of Leaf Data

Users Menu – holds a list of all authorized users for viewing and limited modification. Authorization levels for users can be modified by an 'administrative' user of Leaf Data Systems.

API Menu – offers information regarding the API coding information available for labs to integrate their information into Leaf Data Systems as well as test functionality for API integration.

History Menu – contains filterable historical data relevant to a lab's information within Leaf.

Reports Menu – contains filterable current data relevant to a lab's information within Leaf.

Data Entry Menu – allows for manual entry or data file upload (.csv format) for all data points relevant to a lab's classification to be captured within Leaf.

2

Global ID Search – allows a user to search within Leaf Data Systems by any plant, batch, or inventory global ID.

3

Environment – denotes the environment of Leaf Data Systems to which you are logged in, if you are not logged into 'Production', for example, 'Training,' 'Test,' or 'Stage.'

4

User Menu – provides the ability to log out a user, and for Admin roles to authenticate a browser on a specific computer for use by all users.

Logout – when selected, user logged into a browser will be logged out.

Release Notes – click to view the most recent 'Release Notes' relative to the environment you are logged into.

Location Menu – enables users to toggle between Leaf instances of each business they are authorized to access.

Common Site Functions

Figure 1.5

The screenshot displays the LEAF State Of Washington interface. At the top, there is a navigation bar with the LEAF logo, "State Of Washington", and several menu items: "Data Entry", "Reports", "History", "API", "Users", and a search bar containing "global id" with a "GO" button. Below the navigation bar, the word "TEST" is displayed in large green letters. The main content area is titled "Batch Report" and features a search and filter section. This section includes input fields for "LICENSEES ID", "GLOBAL ID", "EXTERNAL ID", "AGENT ID", and "TYPE", along with date range selectors for "PLANTED DATE FROM" and "HARVESTED DATE FROM". A "filter" button is present, and an "Export" button is located to the right. Below the filter section is a table with the following columns: GLOBAL ID, EXTERNAL ID, LICENSEES ID, AGENT ID, LABEL, DETAILS, DISPOSALS, AREA, STATUS, TYPE, and STRAIN. The table contains five rows of data, all with "open" status and "concentrated cannabis" type. The "EXTERNAL ID" column is sorted in descending order. Four callout boxes are present: "1" points to the filter section, "2" points to the sorting arrows on the "EXTERNAL ID" header, "3" points to the "Export" button, and "4" points to the "DETAILS" column header.

GLOBAL ID	EXTERNAL ID	LICENSEES ID	AGENT ID	LABEL	DETAILS	DISPOSALS	AREA	STATUS	TYPE	STRAIN
WAD-55555.BA2E1KR		D-55555	Valerie Burns					open	concentrated cannabis	
WAD-55555.BA2E1KS		D-55555	Valerie Burns					open	concentrated cannabis	
WAD-55555.BA2E1KT		D-55555	Valerie Burns					open	concentrated cannabis	
WAD-55555.BA2E1KU		D-55555	Valerie Burns					open	concentrated cannabis	
WAD-55555.BA2E1KV		D-55555	Valerie Burns					open	concentrated cannabis	

1

Filtering – data fields at the top of forms allow for filtering by key data points relevant to the form

2

Sorting – arrows adjacent to column headers allow for ascending and descending sorting of data within the columns

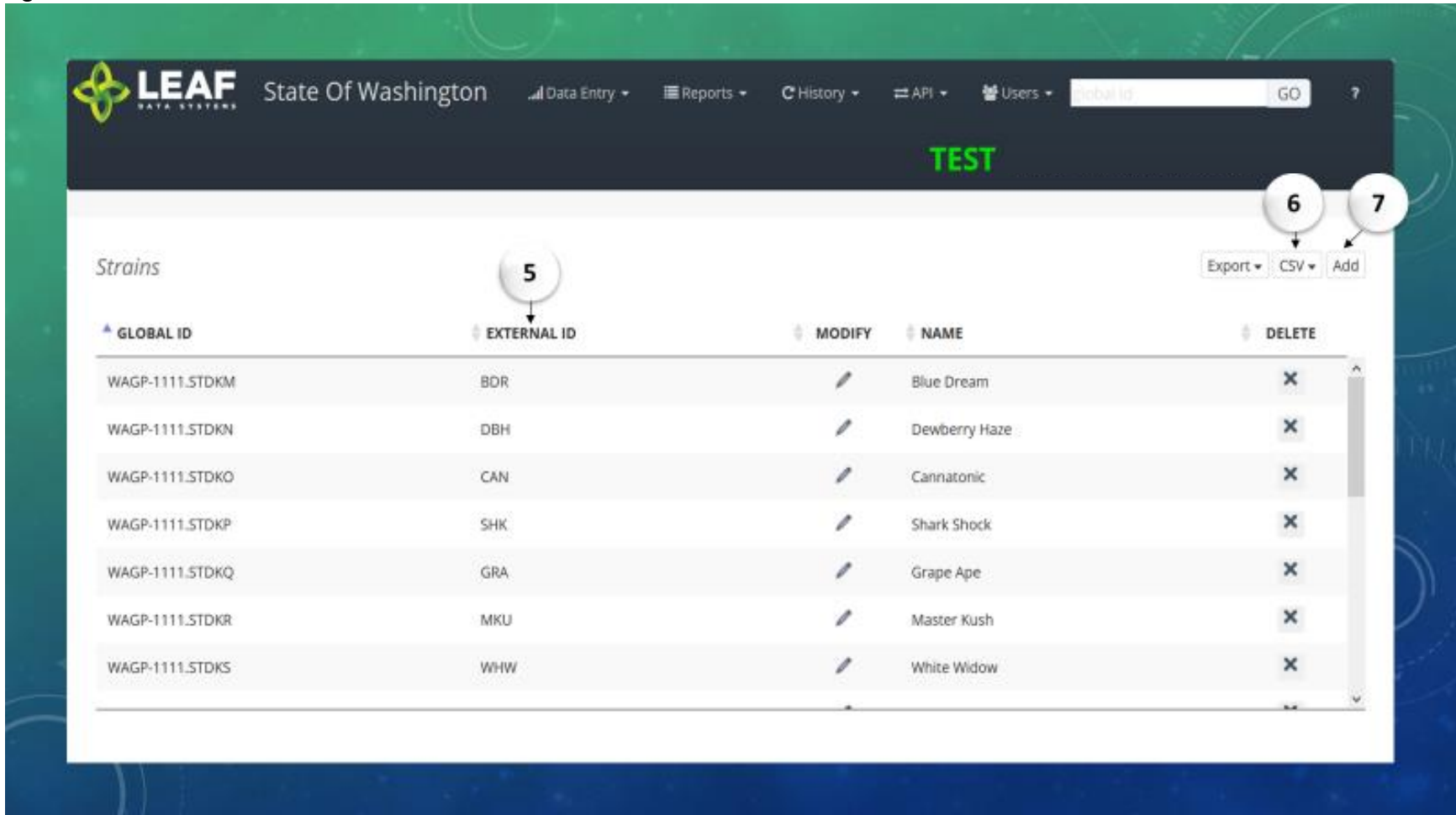
3

Exporting – data can be exported into two file types: Excel and .csv

4

Information Links – certain line item data has links embedded which will navigate you to a page corresponding to more detailed information about the data

Figure 1.6



5

External ID – additional data field available for all data points in order to allow correspondence of external naming conventions for data.

Adding Data – data can be imported by manually adding each line item, or by uploading a .csv file with the appropriate information.

6

CSV – used for uploading an appropriately formatted .csv file in order to import data into Leaf in order to create, update, or delete a record.

7

Add – used for manual data upload; produces a form where data point details can be entered field by field.

Global ID

The system assigns a globally-unique, non-repeating identification number for every line item recorded across all facilities in the State. The composition of each unique or “Global” ID is as follows:

- ◆ Positions 1-2 represent the State. Each Global ID will start with WA.
- ◆ Position 3 will be a letter representing the type of licensee/facility:
 - ◆ G for Producers
 - ◆ R for Retailers
 - ◆ L for Labs
 - ◆ M for Processors
 - ◆ J for Producer/Processors
 - ◆ T for Tribes
 - ◆ E for Coops
 - ◆ Z for Transporters
- ◆ Positions 4-9 represent the licensee ID number (the six-digit code assigned by the State).
- ◆ Position 10 is a period used as a separator.
- ◆ Positions 11-12 identify the type of “entity” the item is, for example “PL” would stand for “Plant.” Two digit identifiers used are as follows:
 - ◆ AR – areas
 - ◆ BA – batches
 - ◆ DI – disposals
 - ◆ IN – inventory lots
 - ◆ IT – inventory transfers
 - ◆ LR – lab results
 - ◆ PL – plants
 - ◆ SA – sales
 - ◆ ST – strains
 - ◆ US – users
- ◆ The remaining digits are a UNIQUE PRIMARY KEY in the database using an unsigned BIG INTeGer, converted into base-36 using the symbols 0-9, A-Z.
 - ◆ An Unsigned BIG Integer = 8 Bytes = $(2^{63})-1$
 - ◆ Max number size in Base-10 = 18,446,744,073,709,551,615 (20 digits)
 - ◆ Max number size in Base-36 = 3W5E11264SG0G (13 digits)

Manual/CSV Data Entry Workflow Outline

QA Lab Data Entry Workflow Outline
<ul style="list-style-type: none">◆ Admin Setup<ul style="list-style-type: none">◆ Assign User Authorization levels◆ Create Areas◆ Receiving Inventory Transfers (from licensees)◆ Adding Lab Results◆ Inventory Functions<ul style="list-style-type: none">◆ Splitting Lots◆ Moving Lots◆ Disposals◆ Inventory Adjustments◆ Inventory Functions<ul style="list-style-type: none">◆ Splitting Lots◆ Moving Lots◆ Disposals◆ Inventory Adjustments◆ Transferring Inventory to Other licensees