OFPA April 15th 2021 Spring Technical Meeting Presentation

Who am I?

FRANK MASSONG - Technical and Regulatory Advisor at Purity-IQ

- Several decades in food inspection and lately, in private consultancy (regulatory, systems management)
- Developing and delivering safety and quality standards using established regulatory obligations and private global standards as a guide
  - Food Safety Enhancement Program (FSEP) leading to SFCA
  - Organic regulation and standards (Canadian Organic Regime)
  - Gluten-Free Certification Program
  - Cannabis Authenticity and Purity Standard (CAPS)

What is Purity- IQ?

- Global bioscience business founded upon cutting edge genetic, chemical and metabolomics biotechnologies.
- The mission is to work with brands to bring authenticated products to constomers, by developing safety and quality standards and certification processes founded on innovative science.

Trust

Respect

Educate

Confidentiality

Cannabis Council of Canada

Licensed.
Regulated.
Trusted.

BRUKER

NHP RESEARCH ALLIANCE

Purity-IQ™

Lighthouse genomics

HIGH NORTH LABORATORIES

Mission today:

- Discuss examples of industry driven standards and certification for effectively managing the quality assurance of products
- Highlight processes to ensure a consistent production and supply of authentic products and ingredients
- Present level of successes of existing systems and tools and the newest levels achievable using new technology in novel ways

Examples of industry driven standards and certification

- GFSI benchmarked standards (e.g., BRC Global Stanadards, FSSC 22K, SQF, Global G.A.P., PrimusGFS, IFS, Global Aquaculture Alliance Seafood, Global Red Meat Standard)
- Other private standards: safety, quality and authenticity - CAPS
- Certification Bodies (e.g., SGS, BSI, QMI-SAI) accredited by competent, global authorities to ISO 17065&17021 (e.g., ANAB/ANSI, SCC, UKAS, JASANZ etc.)
- Accredited laboratories to ISO 17025
- Common themes of systematic approach
  - Prevention of failures
  - Improvement
  - Can be combined with regulatory requirements

Key processes to ensure a consistent supply of authentic ingredients

- Supplier and ingredient approval
- Testing (finished product and screening)
- On-going production management and final product release processes
- Tracking and tracing

Present level of success of existing systems and tools

- **The level of failures with respect to misrepresentation, misbranding, fraud, substitution or omissions is growing (extensive global sourcing, Covid-19)**
  - Food fraud in EU increased by 85% between 2016 and 2019 (Food Authenticity Network)
- Some product failures are more serious than others whether accidental or intended (i.e., fraud)
  - Safety (e.g., allergens, synthetics)
  - Efficacy (e.g., botanicals)
  - Consumer experience (e.g., cannabis)
  - Pirating (e.g., counterfeiting another company’s brand identity)
  - Economic fraud (e.g., country of origin, method of production)

Enhancing the level of protection (safety, quality and authenticity)

- Purity-IQ focused on:
  - Innovation and collaboration are crucial for the industry to share best practice and create solutions for mitigation and prevention.
  - Technologies and digital traceability systems to authenticate and track a food product's journey through the supply chain and pinpoint the root causes of safety, quality and authenticity failures
- 1st out of the gate was **Cannabis**: Cannabis Authenticity and Purity Standard (CAPS)

Cannabis Authenticity and Purity Standard (CAPS)

- **CAPS addresses certification of sites and products:**
  - **CAPS: Basic certification- sites**
    - Using standard Good Agricultural/Manufacturing Practices to establish innovative approaches that can be applied at a site to consistently deliver outcomes for safety and quality
  - **CAPS: Advanced – product certification**
    - Using CAPS: Basic as a prerequisite, certify products using the overlay novel molecular diagnostic tools to tackle major issues in ingredient and final product authentication
  - **Due diligence** is measured by a competent 3rd party (CB) to ensure that appropriate mitigation and level of prevention are in place to manage risks.

CAPS: Basic – site certification

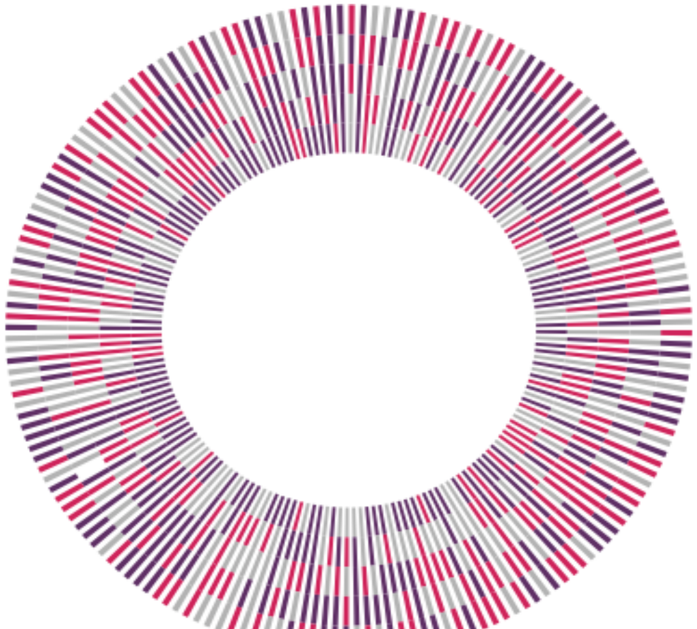
- Product identification
- Hazard identification
- Establish limits
- Risk assessment
- Pre-requisite programs
- Preventive controls

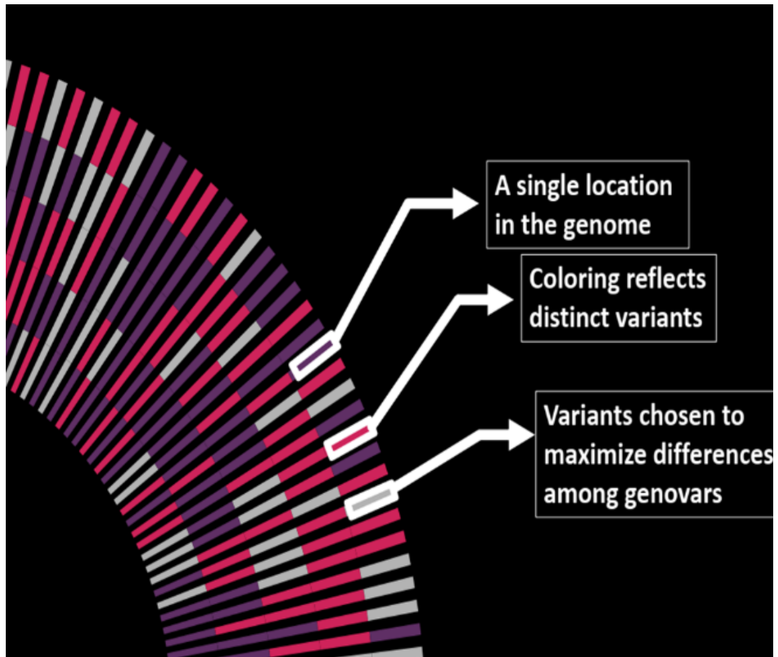
CAPS: Advanced – product certification

- Analyze and capture detailed genomic *(DNA)* and metabolomic fingerprint *(NMR)* data
- Establish a global registry to benchmark intellectual property and reference material which can recognize the benefits of biodiversity of cannabis and hemp cultivars
- Measure the consistency of the final product to the registry benchmark
  - Genomic match and metabolomic fingerprint - propagation, cultivation and harvest
  - Metabolomic fingerprint only – manufacturing (e.g., extraction, concentration, distillation)
- Assign a rating for consistency achieved

Genomic match

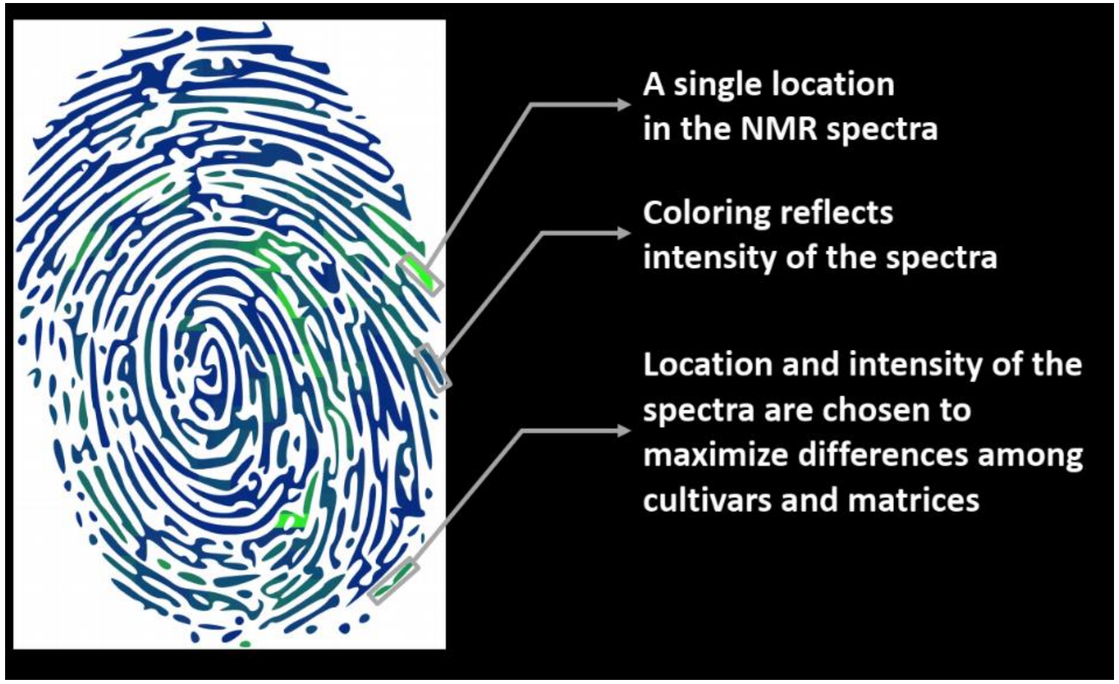
Genomic analysis: Genomic iris identification





Metabolomic fingerprint

Metabolomic analysis: Metabolomic fingerprint



Certification for authenticity

	C1: ≥98% confidence interval	C2: ≥95% to <98% confidence interval	C3: ≥90% to <95% confidence interval	<90% confidence interval
G1: ≥98% genomic cultivar match	IQ-1	IQ-2	IQ-3	Unrated
G2: ≥95% to <98% genomic cultivar match	IQ-2	IQ-2	IQ-3	
G3: ≥90% to <95% genomic cultivar match	IQ-3	IQ-3	IQ-3	
<90% genomic cultivar match	Unrated			
G (genomic cultivar match) applies to mother and clone plants				

Conclusions

Using applied science and approach can:

- **deliver consistent safety and quality as well as prove due diligence**
- **authenticate & differentiate brands in a crowded marketplace using genomic and metabolomic data**
- **be applied to other commodities**
  - ***Start Authentic***
  - ***Stay Authentic***

THANK YOU !!!!

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