



Shelby M Smith

Food and Nutrition
Montana State University
MMEC
Advisor:
Dr. Wan-Yuan Kuo

Company Background:

The American Indian Food Program is a nationwide organization that supports indigenous producers by offering several services and programs to assist Native American producers seeking new markets or export expansion. It is a branch of the intertribal agricultural council, who's main mission is to promote change to Indian agriculture for the benefit of Indian people. The American Indian Food program was founded in 1987 to promote the conservation, development, and use of Native American agricultural resources for the betterment of Indigenous communities. Through their export program they can highlight indigenous products, goods, and culture to the rest



of the world. The rege[N]ation program

specifically outlines that farmers are practicing in a way that there is mutual benefit of the producers and the land, working towards eliminating synthetic and industrialized inputs and replacing them with traditional or natural-based methods.

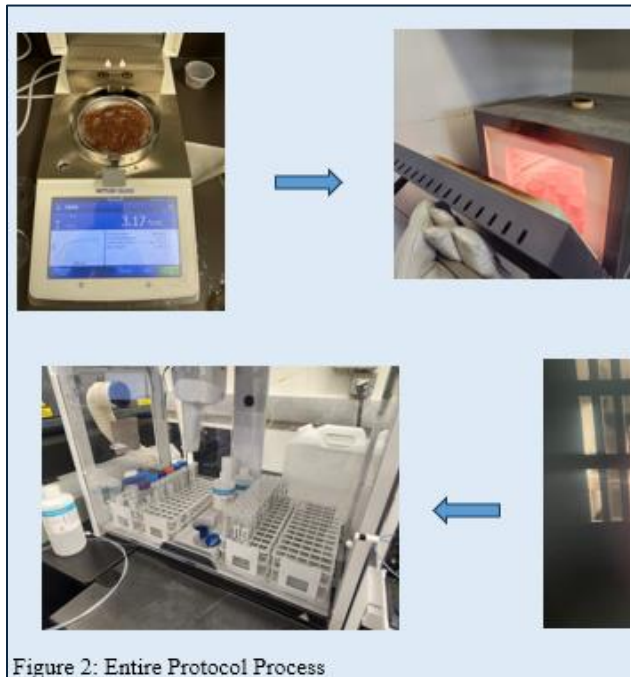
Heavy Metal Analysis Protocol:

- 1.Used moisture analyzer (Mettler Toledo) to dry 2 grams of each sample. Stored dried samples in 15 mL Falcon® tubes.
- 2.Burned porcelain crucibles at 500°C for 1 hour in muffle furnace (Thermo Scientific). Transferred 1 gram of each dried sample to pre-burned crucibles and burned for 12 hours at 500°C.
- 3.Digested ash samples with 1.6 mL of 1 M nitric acid (OPTIMA Grade, Fisher Chemical, Fair Lawn, NJ), diluted with ICP-MS grade water (W6-4 Water, Fisher Chemical, Fair Lawn, NJ) to 5 mL (solution is approx. 2% nitric acid by mass). Filtered sample through a 0.22-micron filter, which was first rinsed with 3 mL of the nitric acid solution.
- 4.ICP-MS (Agilent 7800) analysis was performed.

Project Outcomes:

Established heavy metal analysis protocol for AIF to potentially utilize in establishing regen[N]ation certification metrics and ensure safety of their distributed goods.

Data regarding conventional and regenerative food products.



Significance/Focus:

The significance of this research is to provide toxic metals data for the American Indian Foods program, to which they account for and use in ensuring the safety of various food products. In addition to that, AIF can start practicing regeneratively while addressing food and water safety and potentially reducing health concerns among consumers. Develop recommendations for the heavy metal limits for the Rege[N]ation Certification based on established database, regulations, and cultural consumption factors.

Regenerative Farming Facts:

- Decrease global greenhouse gas emissions by 20%
- Increase crop yields by 40%
- Increase water percolation by 15 to 20%
- Can eliminate 250 metric tons of co2 annually

