Developing Testing Protocols to Assure the Quality of Fertilizer Materials for Organic Agriculture

Rationale

- There is growing concern regarding the authenticity and integrity of organic soil and crop amendments among certifiers, growers, the Organic Materials Review Institute (OMRI), and the California Department of Food and Agriculture.
- It is necessary to maintain customer confidence in products which are certified as organic.
- A systematic and rapid method for testing labs and regulatory agencies to detect adulteration of organic fertilizers is required.

Approach

I. Created literature database on raw materials and organic fertilizers.

II. Collected and analyzed solid and liquid samples (currently 250 samples): differentiate best by **N isotope ratio**, **C:N ratio**, and **NH_4 content**.

III. Creating database of expected or "natural" range of values for each of properties of interest.

IV. Developing systematic protocol of methods for identifying possible presence of adulterants (Fig. 1).

V. Refining protocol through analysis of "blind" samples at various national test labs.

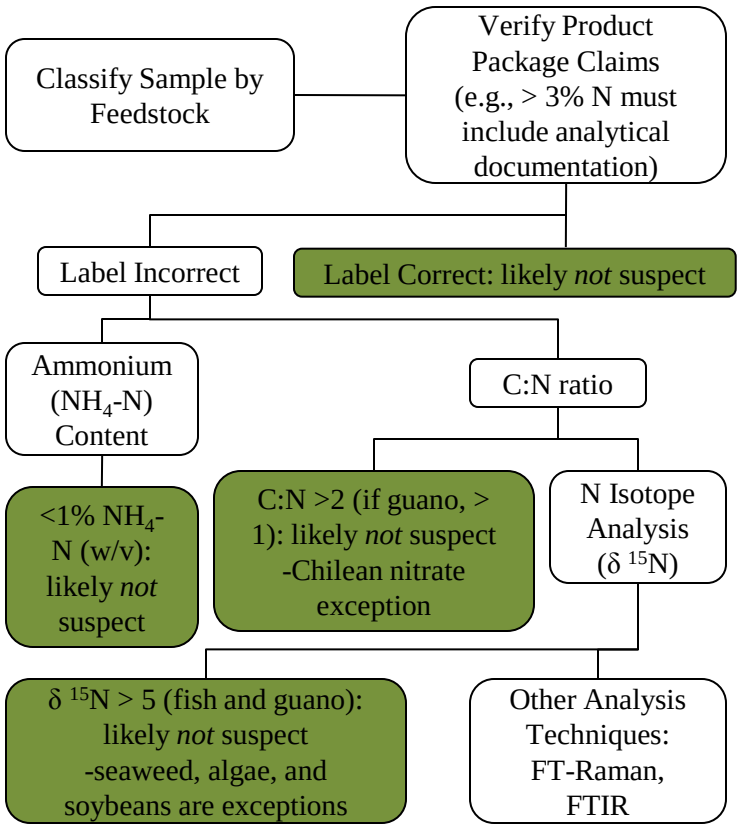

Figure 1. Flow chart showing recommended course of action for test labs and regulatory agencies. Example illustrates how a series of tests can select samples suspect of containing inorganic adulterants.

Potential Adulterants:
Synthetic ammonia and urea

Manure **Algae** **Feather meal**
Compost
Seabird guano **Seaweed**
Cottonseed meal
Blood meal
Fish emulsion
Chile nitrate **Soybean meal**
Fish meal
Bat guano

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