What is claimed is:

1. A method of analyzing animal feed comprising steps of:

a) digesting a sample of animal feed in vitro using at least one digestive enzyme to generate digested animal feed comprising at least one residual component;

b) scanning the digested animal feed using NIR spectroscopy to generate spectral data; and

c) comparing the spectral data to a computer model to generate a predicted concentration of the at least one residual component of the digested animal feed.

2. The method of claim 1, wherein at least one digestive enzyme is pepsin or pancreatin or both.

3. The method of claim 1 or claim 2, wherein the digesting the sample of animal feed further comprises separating the digested sample into a dry matter portion and a liquid portion and wherein scanning the digested animal feed comprises scanning the dry matter portion.

4. The method of claim 3, wherein the dry matter portion is dried before scanning the dry matter portion.

5. The method of any one of claims 1-4, wherein the at least one residual component is selected from the group consisting of protein, phosphorous, gross energy, and carbohydrates.

6. The method of any one of claims 1-5, wherein the sample of animal feed comprises an additive.

7. The method of claim 6, wherein the additive comprises an enzyme.

8. The method of any one of claims 1-7, wherein the method further comprises determining the effect of the additive on digestibility of the animal feed by comparing the predicted concentration of the at least one residual component in the sample of digested animal feed comprising the additive to a predicted concentration of the at least one residual component in a sample of the digested animal feed without the additive.

9. The method of any one of claims 1-8, wherein the spectral data is compared using a computer implemented method comprising receiving spectral data from the digested sample and comparing the spectral data to the computer model to obtain the predicted concentration of the at least one residual component.

What is claimed is:

1. A method of analyzing animal feed for swine or poultry comprising steps of:

a) digesting in vitro a sample of animal feed having an animal feed composition to generate digested animal feed comprising at least one residual component, wherein the at least one residual component is selected from the group consisting of protein, phosphorous, gross energy, and carbohydrates, wherein the sample of animal feed consists of swine feed, poultry feed, and mixtures thereof, wherein the animal feed composition comprises one or more of barley, chau moellier, kale, rapeseed, rutabaga, turnip, millet, oats, sorghum, soybeans, wheat, corn, rapeseed meal, cottonseed meal, soybean meal, corn meal, sugars, amino acids, vitamins, antioxidant, algal meal, omega-3 fatty acid, selenium, supplemental enzyme, or a mixture of any thereof, wherein digesting comprises two phases, wherein a phase includes use of at least one enzyme comprising pepsin, and wherein another phase includes at least one enzyme comprising pancreatin, and wherein digesting further comprises separating the digested animal feed into a dry matter portion and a liquid portion;

b) scanning the dry matter portion of the digested animal feed using a near infrared (NIR) spectrophotometer to generate spectral data; and

c) comparing the spectral data to a computer model to generate a predicted concentration of the at least one residual component of the digested animal feed, wherein the spectral data is compared using a computer implemented method comprising receiving spectral data from the digested animal feed and comparing the spectral data to the computer model of the at least one residual component to obtain the predicted concentration of the at least one residual component.

2. The method of claim 1, wherein the dry matter portion is dried before scanning the dry matter portion.

3. The method of any one of claims 1-2, wherein the sample of animal feed comprises an additive.

4. The method of any one of claims 1-3, wherein the sample of animal feed comprises an additive and the method further comprises determining the effect of the additive on digestibility of the animal feed by comparing the predicted concentration of the at least one residual component in the sample of digested animal feed comprising the additive to a predicted concentration of the at least one residual component in a sample of the digested animal feed without the additive.