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Alternatives to Soy By Alyssa Walsh

Fertrell has seen a growing interest in meat and eggs from livestock fed a soy free diet. Because of this, we get multiple requests a week for soy free rations. Soy free rations are a little trickier to formulate in comparison to the traditional soy rations. Soy is a good protein source because it has a good amino acid profile and can be fed at high levels after it has been heat treated (for example, roasting). To make a good soy free ration, we need 4-5 different protein sources to replace soy. Each soy alternative has limits on how much we can add to a ration for different reasons. Some of the soy alternatives can cause an off-flavoring to meat and eggs. Other soy alternatives have anti-nutritional factors, which affect nutrient absorption. Below is a list of soy alternatives along with the reason they are limited in feeds.

- **Peas and Lentils** have tannins and trypsin inhibitors, which reduce protein digestibility. Lighter pea varieties have a much lower tannin content than colored peas.
- **Sunflower Meal** is highly oxidative meaning it can go rancid. Sunflower meal is also high in fiber, which limits the amount that can be included. We don't like to include more than 10-15% sunflower meal of a total feed ration. High fiber rations fed to monogastric will slow the digestive tract and will limit feed intake.
- **Linseed (flax) Meal** can cause a fishy flavor or a paint like smell if fed at levels above 20%.
- **Fish Meal** can cause a fishy flavor to meat and eggs if fed above levels of 5-10%
- **Crab Meal** is limited to about 7.5% of a feed ration because of the high levels of salt.
- **Sesame Meal** has phytic acid, which will affect calcium and phosphorus absorption if fed about 10-15% of the total feed ration.
- **Camelina Meal** is limited to 10% of a broiler and layer ration and 2% of hog rations by the FDA. Camelina meal also contains glucosinolates, which affect the thyroid and cause metabolic disruptions.

Sourcing all of these ingredients can be a headache! Be sure that you have adequate storage for each protein sources. After you find all of your ingredients to meet your livestock's protein requirements, the nutrition team at Fertrell can help you formulate a ration based on production goals.