A behind-the-scenes look at a soybean processing plant

**DID YOU KNOW?**
Soybeans are processed into meal and oil, but how that happens is often a mystery. Here’s a behind-the-curtain look at how a processing plant operates.

1. **Cleaning**
   Soybeans run through screeners to remove foreign materials, hulls and weed seeds.

2. **Grading**
   Using NIR (near-infrared spectroscopy), soybeans are graded on several factors, including test weight, moisture, protein and oil content.

3. **Cracking**
   Large rollers crack the soybeans into six to eight pieces.

4. **Aspirating**
   Air flow separates the hulls from the kernels.

5. **Flaking**
   Rolls flatten the kernels into flakes to increase surface area and disrupt the oil cell structure.

6. **Extraction**
   Solvent is run over the flakes to extract the oil.

7. **Drying**
   (Two methods)
   - Traditional: Storing soybeans to dry down to 11% moisture to pop the hull. Hot Dehulling: Flash drying with heat to pop the hulls quicker.

8. **Refining**
   Gums such as lecithins are removed from the crude oil. The oil is now classified as degummed soybean oil. The gums are added back into the meal for energy or used in commercial products as emulsifiers.

9. **Stripping**
   The oil is stripped from the extractor in the form of micelle – a combination of oil and solvent.

10. **Deodorizing**
    Odors are removed from the soybean oil for market.

11. **Distilling**
    Separates the solvent from the oil. The oil is now crude soybean oil.

12. **Sizing**
    The meal is conveyed over screens to ensure correct size. Large pieces are resized.

13. **Evaluating**
    An NIR tests the final product for levels of fiber, residual fat, etc. The product is adjusted if ideal levels are not met.

**Desolventizer–Toaster–Dryer–Cooler (DTDC)**
- The flakes are put into DTDC kettles for the next four steps.
- **Desolventizing:** Steams distills and recaptures the solvent for reuse.
- **Toasting:** Removes anti-nutritional factors, making the protein easier to digest for animals.
- **Drying:** Optimizes the moisture of the meal flakes.
- **Cooling:** Gets meal flakes close to ambient temperatures.