

Cattle Producer's Handbook

Nutrition Section

334

Feeding Ethanol Co-products from Corn to Beef Cattle

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Most have heard the phrase, “When you are handed lemons, make lemonade.” Cattle producers have observed the rapidly growing ethanol industry and its hunger for corn. So, how can they make lemonade out of this? The answer is by using the co-products of ethanol production, such as distiller’s dried grains, which are becoming increasingly available and can be a cost effective feed ingredient. This fact sheet discusses how ethanol is made from corn, the nutritional value of ethanol co-products, and storage concerns of the co-products.

Ethanol Production

The ethanol industry in the U.S. is expanding rapidly because the production of ethanol from corn has become a strategy to reduce our reliance on foreign crude oil. Two types of milling processes are currently used to produce ethanol—wet and dry milling—with the vast majority of ethanol in the United States coming from dry milling.

Wet milling is the more complex of the two processes because the corn kernel is partitioned into several components to facilitate high value marketing. During this process, corn is “steeped” and the kernel’s components are separated into bran, starch, gluten meal, germ, and soluble components. This process requires high quality corn because it typically results in numerous products, primarily for human use, such as corn oil and corn sweeteners like high fructose corn syrup and dextrose. Co-products of this process that can be used as livestock feed are corn gluten feed and corn gluten meal (Fig. 1).

The dry milling process is relatively simple (Fig. 2). Corn is ground, fermented, and the starch converted to ethanol and carbon dioxide, with about a third of the dry matter (DM) remaining as co-product (this is because corn is about two-thirds starch). Quantitatively, dry milling 100 pounds of corn will result in approximately

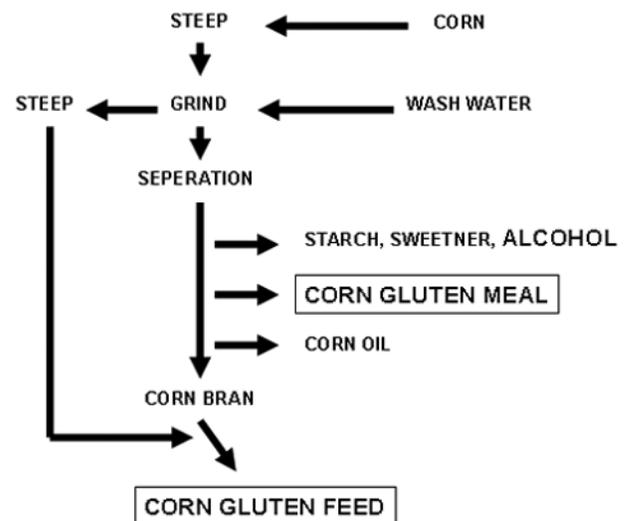


Fig. 1. Flowchart of the corn wet milling industry.

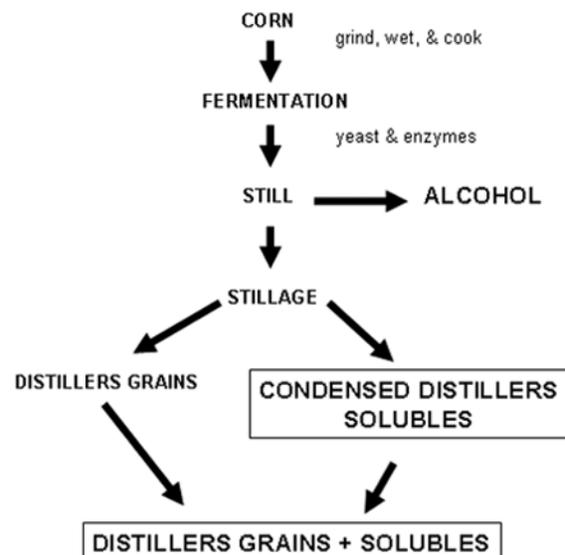


Fig. 2. Flowchart of the corn dry milling industry.