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Agro-industrial by-products (AIBP) are mostly derived from agricultural processing industries such as *cereal grain milling, oilseed extraction, brewery, malt production, fruit and vegetable processing*. **These represent a vast potential source of animal feed**, which are currently not fully exploited. Although the nutritional value of most AIBP is widely known, their utilisation is hindered by several factors such as poor control of processing techniques, fluctuating supply, limited access to available suppliers, poor marketing channels, difficulty in transferring existing technologies and lack of legislation on their trade and use.

Numerous studies have proven that AIBPS can be safely used as animal feed, without compromising animal product safety and animal and human welfare.

Some of the AIBPs used in livestock feeding are:

- cotton seed;
- ground nut and palm kernel cakes;
- protein sources such as molasses, pulse, rice brans which have shown surprising results in increasing energy in ruminants.

The nutritional values of some commonly used by-products can be found below.

Unlocking the potential of agro-industrial by-products

By-product	DM	CP	Fat	CF	NDF	ADF	ADL	ME (ruminants)	OMD (ruminants)
Rice bran	90.1	14.8	17.2	8.4	25.2	11.2	4.1	13.1	76.9
Maize bran	88.7	11.9	4.6	12.3	44.2	14.5	2.2	11.0	74.8
Molasses	73.0	5.5	1.0	0.1	0.8	0.5	0.3	9.6	79.7
Soybean meal (dehulled)	88.1	53.5	1.8	4.9	11.0	5.9	0.5	13.6	92.4
Cotton seed cake	92.2	45.0	8.9	10.6	23.7	15.0	5.4	13.2	81.7
Maize	90.0	8.0	4.5	2.4	15.5	3.2	0.5	13.6	88.7
Soybean	91.2	42.4	20.9	3.7	9.1	4.8	0.6	15.5	82.2

Table 1. Nutritional value of various by-products. Soybean and maize values are displayed to use as standard source of protein and energy respectively.

Agro-industrial by-products require natural resources to produce and have economic and environmental costs associated with them, therefore AIBPs integration in [animal nutrition feed ingredients](#) could be an excellent way of reducing land and air polluting and a best way of recovering from cost of production.

Comparing to other feeds used to feed livestock, **Agro-industrial by-products have several advantages**, such as:

- relatively cheap or no cost,
- feed shortage during periods of scarcity and uneven distribution,
- they do not compete for human food resources.
- In addition to this, as it can be observed in the table, they have comparable values to the crop they are derived.

Unlocking the potential of agro-industrial by-products

In many African countries, the food industry is rapidly increasing, some entrepreneurs are using innovative techniques to produce traditional products on a commercial scale e.g. *eembe flour, marula oil, mahangu cookies* etc. **These food processing companies/industries produce by-products, which need to be studied and utilised as feed ingredients for livestock or as a source of organic fertiliser or fuel.**