

Feed intervention >> Supplementation and supplemental nutrition > Agro-industrial by-products

Dry by-products: Cereals



A trader selling cereal bran at a livestock market in Niger.



Mixing rice bran and fresh, chopped *Stylosanthes guianensis* CIAT184 leaf as a feed mix for pigs in Laos.



Ricebran – fresh *Leucaena leucocephala* leaf mix for pigs in Laos.

Description

- ✓ Cereal brans are obtained during milling and processing of grains. Commonly available brans are rice, wheat, barley, maize, sorghum and pearl millet.
- ✓ They are highly valued for their nutrient content, and are widely used as a feed supplement for monogastric (e.g. pigs) and ruminant (e.g. cattle) animals.
- ✓ Cereal by-products are traded extensively and there is high demand, locally and internationally.
- ✓ They commonly fed along with other supplements like oil cake, grain and pulse husk, or in compound feeds.

Key benefits

- ✓ Cereal brans are an excellent source of energy and protein. They are very palatable.
- ✓ Most cereal brans, being dry, can be stored and transported over longer distances. Many are available all year.
- ✓ Being nutrient-dense, cereal brans have a strong positive production response and can be used as a strategic supplement to achieve high productivity of animals fed a lower quality basal diet.
- ✓ Cereal by-products tend to be high in phosphorus, B complex vitamins and have a laxative effect.

Key limitations

- ✗ Cereal by-products are often costly, limiting their use to animals needing high-quality diets and for strategic purposes.
- ✗ Cereal brans tend to be low in calcium and high bran diets should be balanced with calcium sources.
- ✗ Oil-containing brans, such as rice, can become rancid within 2-3 weeks in hot, humid conditions. Cool and dry storage can increase their shelf-life.
- ✗ Rice bran is often contaminated with rice husks, particularly when processed in cheaper micro-mills.
- ✗ In monogastric animals, bio-availability of phosphorus from bran is limited due to its presence in phytin form.
- ✗ On high-bran diets there is marked softening effect on body fat and butter fat in milk.

TechFit is a tool to prioritize and select animal feed interventions. It was developed by ILRI under the leadership of Alan Duncan. It has been further refined and developed with inputs from many individuals in and beyond CGIAR. This is one of a series of feed intervention 'TechSheets' developed alongside the TechFit tool to provide summarized information on different interventions included in the tool. Werner Stür led the development of the TechSheets. This sheet was prepared by Anandan Samireddypalle. TechFit is supported by the CGIAR Research Program on Livestock and Fish. ilri.org/techfit



Where does this intervention fit?

Potential to overcome feed limitations	Score
• Feed scarcity during <i>dry season</i> :	high
• Feed scarcity during <i>cropping season</i> :	medium
• Low feed availability :	low
• Poor feed quality :	high

Applicability to livestock	Score
Cattle/buffalo	<ul style="list-style-type: none"> • Breeding (cow-calf) : medium • Fattening : very high • Dairy : very high
Sheep/goats	<ul style="list-style-type: none"> • Breeding : medium • Fattening : very high
Pigs	<ul style="list-style-type: none"> • Breeding (sow-piglets) : very high • Fattening : very high

Applicability to farming system	Score
• Pastoral (extensive grazing systems) :	low
• Agro-pastoral/extensive mixed systems :	medium
• Intensive mixed crop-livestock system :	very high
• Landless livestock producers :	very high

Requirement for resources	Score
Requirement for	<ul style="list-style-type: none"> • Land : none • Water : none • Labour : medium • Cash/credit : high • Access to inputs : high • Knowledge/skills : high

More information:

- ✓ <http://www.feedipedia.org/content/feeds?category=13588>
- ✓ McDonald, P., Edwards, R.A., Greenhalgh, J.F.D. and Morgan, C.A. 2002. Animal Nutrition. Pearson Education (Singapore) Pvt. Ltd., New Delhi, India.

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