



# Crop Residue in Beef Diets

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Crop residue is a viable forage source for cattle and includes straw, chaff and standing stubble, which are available as a feed source for beef cattle.

Crop residues, such as straw and stubble, often do not contain protein, energy or minerals at levels adequate to meet the nutrient requirements of a mid-gestation beef cow. Most crop residues contain an average of three to 4.5 per cent crude protein and 41 to 45 per cent total digestible nutrients (100 per cent dry matter basis).

For cattle fed straw-based diets, cereal grains or hay can be fed to provide more energy and protein in the ration. Extra protein supplementation through hay or protein supplements may also be necessary to ensure a healthy rumen microbe population.

For cattle fed chaff-based diets, feed testing is recommended as the chaff may contain enough energy and protein to meet the maintenance needs of mid-gestating cattle.

However, as with straw and stubble based diets, energy and protein supplementation may be necessary. Supplementation with minerals is always important. Extra vitamin A supplementation is necessary, as crop residues contain low to non-existent levels of this vitamin.

It is not recommended that late gestation or lactating cattle be fed crop residues as the only ingredient in the diet. Not only are nutrient levels low, crop residues often contain high levels of fibre that take longer for rumen bacteria to digest. This slow rate of digestion limits daily dry feed intake. A general rule is to limit straw to 1.25 per cent of the cow's body weight (i.e. 1,200 pound cow x 1.25 per cent = 15 pounds of straw dry matter, 17 pounds as fed). Chaff may be fed at higher levels, as it potentially can include parent seed grains. However, feed tests are recommended before designing a chaff feeding program.

If managed properly, feeding crop residue presents an opportunity to reduce costs. When incorporating on-field residue feeding or stubble grazing, management strategies incorporating proper access and an adequate supply of water, minerals and supplements is necessary.

Lastly, plan to use crop residues during mid-gestation and provide better quality hay during the last trimester of pregnancy to allow for fetal growth and overall cow health.

#### FOR MORE INFORMATION

- Contact the Agriculture Knowledge Centre at 1-866-457-2377, or
- Visit [www.agriculture.gov.sk.ca](http://www.agriculture.gov.sk.ca) and click on Livestock | Beef - Cow and Calf | Production | Feeds and Nutrition.

## CROP RESIDUE COLLECTION AND FIELD-GRAZING



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In areas where there is a lack of rainfall, an alternative source of livestock forage is annual crop residue. On a provincial basis, crop residues are produced on a massive scale and can be a low cost forage option. Once the decision has been made to grow crops for combining, the residue that is produced comes at no extra cost.

Most crop residue has relatively low feed value. Therefore, in order for residue to provide an economical source of livestock feed, it must be bunched during combining and then grazed in the field. Any time crop residue is handled or transported, it adds cost. The least expensive option is to have livestock graze on the residue in the field where it was produced. Field-grazing requires a perimeter fence, a water source and shelter from the wind if it is done during cold weather.

There are two relatively inexpensive combine attachments that bunch crop residues. They are both ideas that have been re-invented from the past.



Photo 1: The Whole Buncher deposits straw and chaff in piles.

One attachment is the *Whole Buncher*® (photos 1 and 2). Essentially, it is a giant pitchfork that collects both the chaff and straw, and deposits the material in piles. It trips automatically when full, and resets using a counterbalance weight. It is better suited to combines

that have the chaff and straw exit in a single stream. Barley and pulse crops are somewhat more suited to whole-crop residue collection.

The *Whole Buncher*® is patented by AJ Manufacturing in Alberta. They are commercially built and distributed by Jack Sumner at Tompkins.



Photo 2: Barley and pulse crops are more suited for collection.

Some producers have built similar units for their own private use.

The other attachment is a box that collects the chaff only (photo 3). It is not available commercially, but producers are building them for their own use. This can be mounted on

combines where the chaff and straw exit the combine in separate streams. The box has a solid bottom, and deposits the chaff in piles, tripping automatically when full and resetting itself using a counterbalance weight. Wheat, flax and canola are better suited for chaff-only collection.

#### FOR MORE INFORMATION

- Contact Lorne Klein, Saskatchewan Ministry of Agriculture at (306) 848-2382, or;
- Call the Agriculture Knowledge Centre at 1-866-457-2377 or;
- Call Jack Sumner, 306-622-2111



Photo 3: Producer mounted collection attachment.

