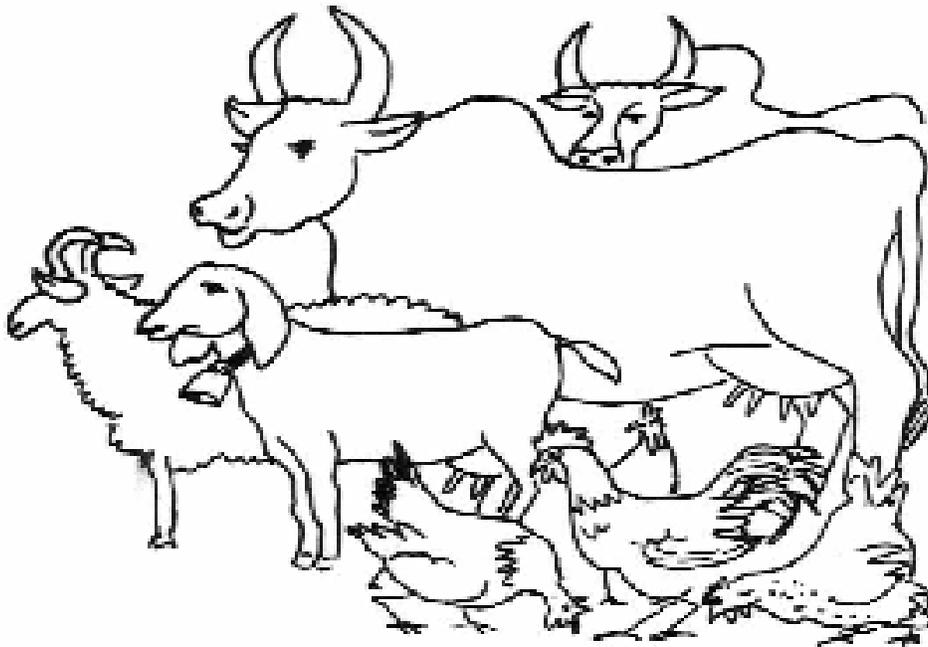


<http://miracletrees.org/LivestockFodder.html>:

Livestock diets are improved by the addition of Moringa products.

Animals become what 'they' eat, and we, in turn, become what we eat through them.

Could farm animals and pets alike be fed healthy foods? Definitely, and the Moringa Tree is poised to play a major part in such a necessary change.



Amazing benefits of Moringa in use as animal feed

Feeding your animals with Moringa leaves and green stems can increase cattle's weight gain up to 32% and increase milk production 43-65%.

Moringa also improves the digestibility of other food that cattle eat and improves the health of your animal.

Even if a fraction of these results could be reproduced in the field, it would be a great boon to people in developing countries. This possibility needs to be investigated further and various aspects examined before the concept can be popularized. Trees for Life would like to help promote and foster such research.

Moringa A plant with multiple medicinal uses and benefits

Moringa as Livestock Fodder Supplement

Population explosion in most parts of the world puts a hitherto unknown pressure on the agricultural industry but there are ethical and healthier intervention paths than what presently obtains. Both livestock and pets can be fed healthy foods and the highly nutritious Moringa plant is strategically poised to play a major part in this wise.

Nikolaus Foidl and Dr. Gabrielle Foidl, have developed intensive methods of cultivating Moringa. They, have been conducting their research in Nicaragua since the early 1990s. Their intensive cultivation methods were developed under experimental conditions on plots ranging in size from 0.5 to 4 hectares. Foidl and his associates have experimented with various uses of Moringa leaves and green stems, including their use in cattle fodder.

Following the Foidl study, a study was conducted by Dr. Nadir Reyes Sanchez. Dr. Reyes is on the Faculty of the Veterinary Medicine and Animal Science Department of Animal Nutrition and Management at the Swedish University of Agricultural Sciences in Uppsala, Sweden.

Cattle Fodder Supplement

These two studies in Nicaragua showed that supplementing cattle feed with the leaves and green stems of Moringa can increase milk production by 43-65%, and increase daily weight gain in cattle by up to 32%. These studies also demonstrated that Moringa can be grown intensively as a field crop:

- One single planting lasts for several years.
- Foidl, et al. have been able to harvest it up to 9 times a year from irrigated and well-fertilized land, producing per year:
 - 650 to 700 metric tons of green mass
 - Equivalent to 100 to 110 metric tons of dry mass

- 17.5 metric tons of pure protein
- 7000 kg of lipids, with 65% being omega-3 fatty acids
- 10 metric tons of fermentable sugars
- Approximately 8 metric tons of starch
- Approximately 45 metric tons of hemicellulose and cellulose.

Dr. Sanchez's study was done without irrigation and with much less fertilizer, and resulted in a total of 100 tons of green mass harvested from four crops in a year. However, milk production and cattle weight increased substantially in both studies.

All these factors may make Moringa leaves and green stems very attractive and inexpensive as a cattle fodder supplement. Two possible methodologies for testing Moringa animal feed



Moringa animal feeding Methodology 1

Growing Moringa for 10 Cattle

Area:

If irrigated and fertilized: 1 ha

If non-irrigated: minimum 2 ha

Spacing: Plant Moringa seeds at a spacing of 10 x 10 centimeters

Fertilization: 10 m³ of cow dung spread evenly after every cutting in the harvested area

Planting and harvesting

Harvesting: Moringa green tops can be cut every 35 days.

Planting: Separate your plot into 35 growing areas. Each day, plant one growing area. Do this for 35 days. This will allow for fresh Moringa to be available for cutting every day on a 35-day cycle.

Moringa Feeding cattle

Average per cow and day is 35 kg of fresh moringa (whole plant) plus grazing during the day. The only thing we add is vitamins and salt.

Slowly introduce the Moringa into the cattle's diet over a period of 10 days, to avoid indigestion or diarrhea. Each day, increase the ratio of Moringa slightly until the full amount is given on the 10th day.

The first day the cattle are given the full amount of Moringa is considered the first day of the study.

Moringa Feeding sheep

To find the quantity, let them eat as much as they want during 15 days, adding some molasses in the first 3 days to raise the appetite.

Weigh the quantity given every day, and then weigh what is left the next morning. Be sure you add some hay or give them pasture additionally so they don't have a lack of fiber. In case of milk producing animals, some extra energy is always welcome (sugarcane, etc.).



Moringa animal feeding Methodology 2

Growing Moringa for animal feed

No irrigation or fertilization

Planting density: 500,000 plants/ha

Spacing: 40 cm between rows and 5 cm between plants.

Cutting frequency: Every 60 days, cut at 25 cm height from soil. Cutting can be done by hand with machete or scissors, or eventually by machinery.

The yield of Moringa leaves and green stems is 99 tons (Fresh Matter) per ha per year. From here you can calculate how much area you need in order to feed 10, 100 or 1000 animals.

Moringa Feeding cattle

Dairy cattle:

Amount to feed: Around 10 - 15 kg fresh matter per head per day, as a supplement to regular diet.

The formula for this is: Amount of fresh Moringa is 3.75% of body weight.

Moringa forage should be offered after milking, to avoid transfer of smell or abnormal taste.

Beef cattle:

The formula is: Amount of fresh Moringa is 6.25% of Body Weight. To be given as a supplement, using Brachiaria hay as base diet, mixed with sugarcane molasses.

Moringa Feeding sheep

Use 5 kg fresh Moringa forage per animal per day as a supplement to regular feed.



Studies performed claim that milk and production can be increased dramatically when livestock feed is supplemented with moringa leaves, but there is some conflicting information.

Another factor to consider is that Moringa Oleifera grows much more intensely than traditional livestock feeds, so that even if Moringa doesn't convert to weight gain as efficiently as traditional feeds, it is immensely cheaper to produce. Alfalfa produces on average, around 7 tons per acre, Oats produce as much as 2.5 tons per acre and Soybeans grown with perfect conditions can produce as much as 6.5 tons of nutritious protein filled beans per acre. With perfect conditions, and all the inputs at optimum levels, the record production of an acre of alfalfa is at 11 tons per acre.

Moringa has been reported to produce more than 280 tons of green matter per acre. Approximately 70 percent of that total is reported to be stems and wood, which can be used for paper production or biomass power production. Traditional feed crops require fertilizer, pesticides and weed killers, which are all expensive. Inputs required for Moringa production are significantly lower.

Moringa leaves are packed with protein, calcium and other important components of a balanced diet for livestock, and they can be grown with much less fertilizer and pesticides than traditional forage crops.



Trial results using Moringa leaves as livestock feed for beef and milk cows, swine, and poultry

When Moringa leaves constituted 40-50% of feed, milk yields for dairy cows and daily weight gains for beef cattle increased by about 30%. Milk production was 10 liters/day when cows were fed Moringa, compared to 7 liters/day without Moringa. With Moringa feed, daily weight gain of beef cattle was 1,200 grams/day, compared to 900 grams/day without Moringa feed[1]."

Whether used as food or feed for livestock, the benefits of the Moringa have become increasingly obvious.