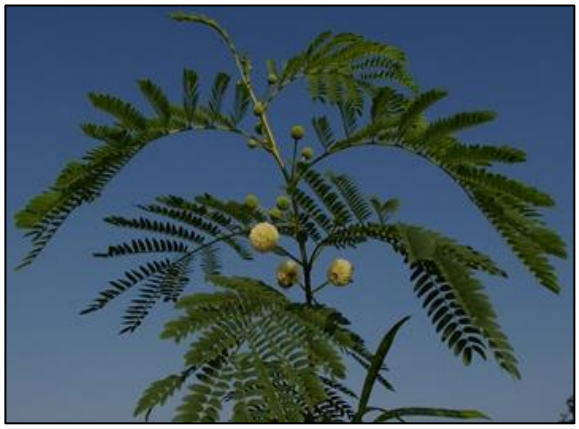
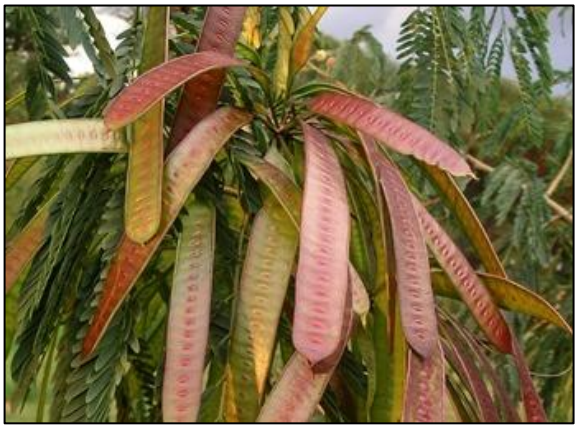
Feeding livestock in a drought-stricken year
Bush meal production

Disclaimer: The stockfeed formulations described herein are not meant to replace commercial products available in the market that have been designed by qualified nutritionists. This article is targeting livestock owners who are not able to access commercial feeds and who are struggling to maintain their herd in this extremely difficult year. Although APT's partners have had good results, we cannot guarantee that use of the information will guarantee success. We recommended the use of this information in consultation with livestock specialists and experienced farmers.

Livestock nutrition is one of the most important aspects of livestock rearing. If an animal is well nourished many of the other problems experienced in livestock management will fall away. This document lists some of the primary sources of livestock nutrition which are readily available throughout Zimbabwe, and how they might be processed into feed.

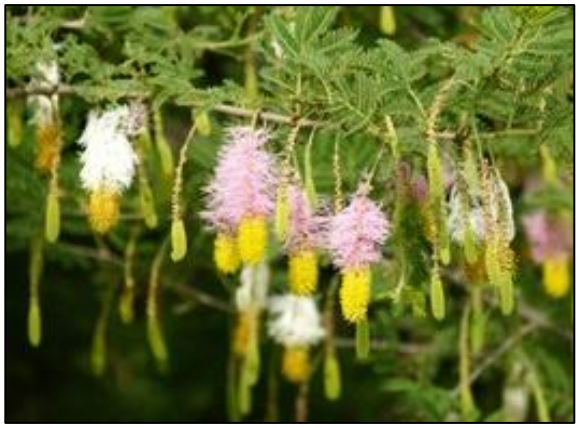
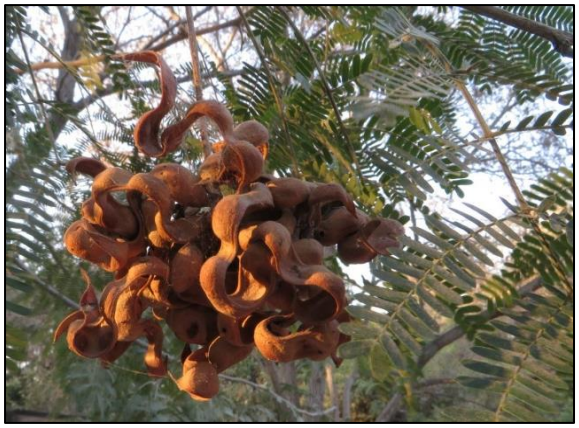
Readily available plants for use as livestock feed

Trees and plants which are commonly found in Zimbabwe that can be used to feed livestock are shown in the pictures below.

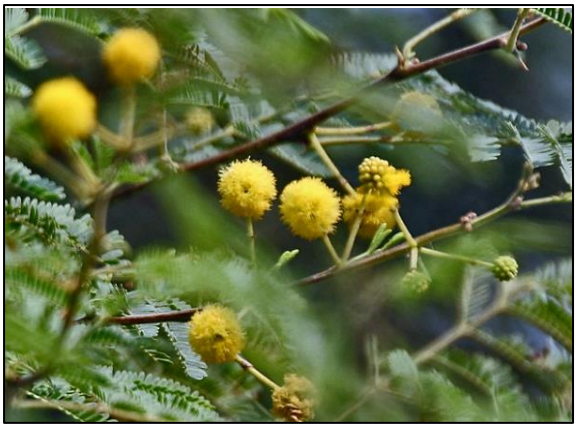
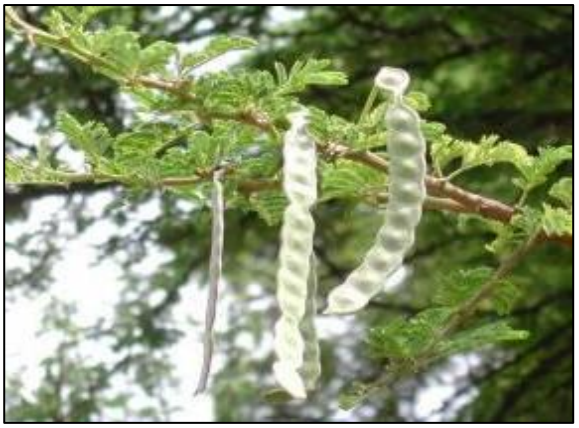



1 *Leucaena leucocephala*


2 Mulberry (*Broussonetia papyrifera*)

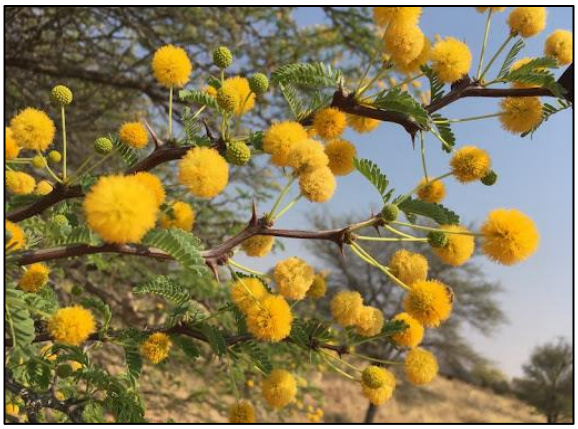



Chinese lantern (D*ichrostachys cinema*)

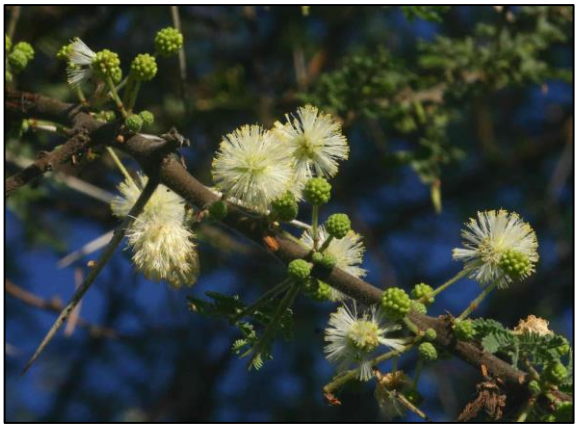
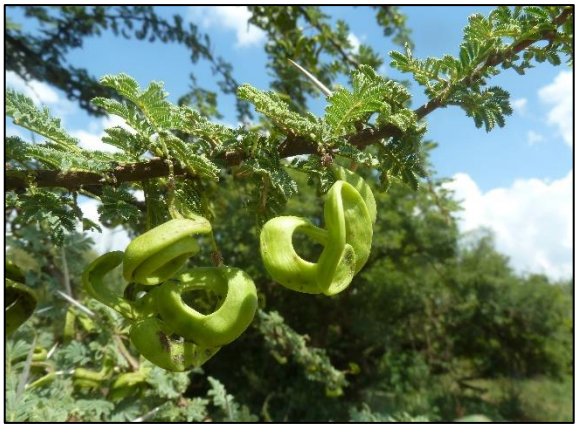



Scented acacia (*Acacia Nilotica*)

Paper bark thorn (*Acacia seiberana*)

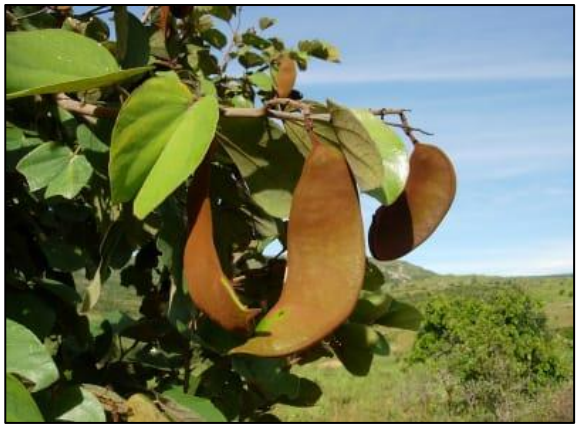



Camel thorn (*Acacia erioloba*)

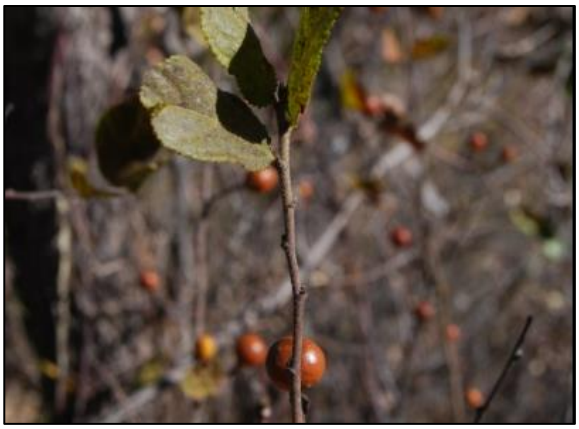



Umbrella thorn (*Acacia tortillis*)


Sweet thorn (*Acacia Karroo*)

Camel's foot tree (*Piliostigma thonningii*)

Donkey berry (*Grewia retinervis*)

The table below lists the trees shown in the pictures and provides information on the part of the tree that can be fed to livestock. The twigs and pods have to be broken down using a chopper grinder or hammermill before animals can eat them.

	Leaves	Twigs	Pods	Fruit
Leucaena (*Leucaena leucocephala)*			✓	
Mulberry (*Broussonetia papyrifera)*	✓			
Chinese lantern (*Dichrostachys cinema*)	✓	✓	✓	
Scented acacia (*Acacia nilotica*)	✓	✓	✓	
Paper bark thorn (*Acacia seiberana*)	✓	✓	✓	
Camel thorn (*Acacia erioloba*)	✓	✓	✓	
Umbrella thorn (*Acacia tortillis*)	✓	✓	✓	
Sweet thorn (*Acacia karroo*)	✓	✓	✓	
Camel's foot tree (*Piliostigma thonningii*)			✓	
Donkey berry (*Grewia retinervis*)	✓	✓		✓

Plants for fodder

The importance of two legumes must be emphasized namely:

- Lablab (*Lablab purpureus*) and;
- Velvet bean (*Mucuna pruriens*)

Lablab (Feedipedia.org, 2019)

Velvet Bean (Feedipedia.org, 2019)

These legumes are drought tolerant and are extremely vigorous growing. Labour demands are low because they cover the soil surface reducing weed competition; subsequently they only require weeding twice or three times a season. A substantial amount of feed material can be produced in less than three months from sowing.

A crop rotation can be practiced with this legume, maize and small grains can follow the following year, as these plants are extremely nitrogenous. Another useful fodder crop is cowpea.

Fodder Storage

One of the most difficult challenges for many farmers is the storage of feed materials, and the most effective solution is by baling the fodder. A very easy system can be used to make the bales by constructing a rectangular hole in the ground 600mm length X 300mm width X 300mm deep. Strings must then be laid along the bottom of the hole with the loose ends protruding out, leaving enough to tie the bale. Once strings have been laid width ways along the hole the vines and leafy matter can be trampled into the hole and packed tightly down and then the strings that are now laying under the matter can be tied and pulled out and then the bail can be stored away.

Bush Meal Manufacturing

Many of the tree and crop materials cannot be fed directly to cattle and it is desirable to break them down into palatable size. Once broken down the materials can be combined to form a supplementary stockfeed, also known as bush meal. Tree materials can be harvested through the year according to their growth cycles and stored until required**. It is not necessary to cut down trees** – twigs are harvested from bottom of trees using clippers. For a sustainable approach it is strongly recommended that trees be planted for a future source of feed.

The bush mill

Acacia pods and twigs are milled through a hammer mill/chopper grinder with a 20/16 mm screen that will smash the pods into smaller sizes. In the absence of a machine a slower alternative is to use the type of pestle and mortar that is traditionally used for breaking down grains. Some farmers use hammer mills that can be used to process grain when not being used for bush meal. Local suppliers of hammermills and chopper grinders include Tanroy, Kurima Machinery and Grownet.

Bush meal Ingredients

Ingredients can include tree parts, leguminous crops, chicken litter[1], a small amount of maize and salt depending on what is available to the farmer. These components are hammer milled and sun dried for a day or two.

The following formulas may be used to avoid poverty deaths and maintain animals.

- Maize 5% = 2.5kg
- Salt 0.05% = 1 teacup size
- Camel Foot pods 25% = 12.5kg
- Acacia pods 25% = 12.5kg
- Chicken litter 25% = 12.5kg
- Milled twigs and leaves of edible trees 20% = 10kg

In the event of very dry years when trees do not produce pods, the following formula may be used.

- Maize 5% = 2.5kg
- Salt 1 cup

[1] Sourced from a chicken run. The litter must be sun dried

- Chicken litter 25% = 12.5kg
- Milled twigs and leaves of edible trees 70% = 35kg

If the legumes mentioned previously are available, they can be used as a substitute for the chicken litter. Farmers need to make sure that chicken litter does not have bones from dead chickens and dead rats to avoid disease such as botulism.

All ingredients are natural and full of minerals and vitamins, high in proteins and easily digestible, no chemicals, all organic and sustainable as bushes are trimmed to grow back.

Other sources of feed

Farmers may consider cutting and drying whatever green swards of veld grasses there are rather than watch them grow, dry and burn senselessly in August/September. Residues of drought-stricken maize may also be collected and stored.

For further information please email ngatitaure@apt.co.zw.