

6.1. FOOD AND FEEDING

6.1.1. Nutritional Requirements

Indian rhinos eat a huge variety of different plant species in the wild. They are grazers and browsers, which means that they have a higher need for hemi-cellulose and protein than for example a pure grazer like the White rhino. Over 180 plant species have been counted (Laurie, 1978) to make up their seasonal menu.

In the wild high growing, reedy grass is the main food, followed by short grass and some water plants, herbs, shrubs, bushes, twigs, branches, and leaves.

All required essential nutrients should be provided by feeding good quality forage. The diet should be balanced, containing the necessary energy and protein (depending on age, sex and reproductive status) components as well as mineral and vitamin supplementation.

It is estimated that an adult Indian rhino will eat 1% of its body weight daily.

In zoological gardens most rhinos are fed a mixed diet of hay / straw, pellets (special formulated rhino pellets), cavalino (pressed hay), fruits (apples, bananas), vegetables (carrots, salads, etc.), grass, branches, and leaves. Alfalfa pellets should not exceed 20% of the total pellet intake. Pellets should not exceed 1/3 of the daily total intake of energy rations as it can lead to overweight animals. Bread is also not recommended.

The following companies supply specially formulated pellets for rhinos (enriched with Vit. E and biotin):

- ? EL-E-Vite, Code 853914; Mazuri Zoo Foods SDS, UK
- ? Pachyderm (Rhino) Supplementary Diet; Mazuri Zoo Foods SDS, UK
- ? Zoo-Herbivore Pellets, Code: 3691; Provimi Kliba SA, Kaiseraugst, CH
- ? Herba Rolls Toscana, Code: 5258; Provimi Kliba SA, Kaiseraugst, CH (these rolls contain mainly pressed hay)

Depending on sex, age, activity pattern, and breeding status 2-9 kg of pellets per animal are fed daily. All available food should be examined with regard to their components.

If pellets of balanced dietary requirements are not available the following should be added to the diet on a regular basis:

- ? Vitamins and minerals
- ? Fruits and vegetables (apples, pears, and carrots, 4-5 kg per animal per day)
- ? Branches with leaves

The amount of food should always be monitored and should stand in close correlation to the requirements (growing, sub-adult, lactating female, activity pattern). The distribution of branches on different locations within the enclosure can lead to an increase in activity and is recommended, especially if animals tend to show stereotypic behaviour.

The animals should also be fed several times per day.

6.1.2. Feeding Location

In Basel Zoo straw is given at one spot and all animals (2-3) eat at the same time without showing any aggression. Pellets are given individually in the stables or at different spots in the enclosure. The food should always be offered from a clean surface to avoid the intake of foreign material (sand, stones, etc.), which might lead to impaction and / or obstruction.

Vegetables and fruits can be offered in the pool, mainly for enrichment purpose.

If possible, rhinos should be trained to take bits from the keeper. This proved helpful to control supplementation and / or medication.

6.1.3. Supplements

Licking salt, with or without minerals, should be at disposal at all times. Forage should be routinely tested for mineral content to gain data for balanced dietary demands. Biotin supplementation is provided through the pellets. Some zoos provide additional biotin. It is supposed to harden the horn structures but does not help in the regeneration of cracks within the soles.

6.1.4. Problematic Diets

In Basel Zoo hay was taken off the rhino diet as one animal developed serious lung problems due to *Micropolyspora faeni*, a fungus with a high affinity to hay and lungs. They are fed straw instead. Before the straw is fed to the rhinos it is cut and shaken to get rid of dust, etc. This has been done for over 25 years now with no adverse affect.

In captivity it is common to see overweight animals. Indian rhinos are very susceptible to gain weight as they are very docile and 'relaxed' animals. The amount of energy they burn over the day does often not stand in correlation with the amount of food they consume. This is an important aspect with regard to foot problems.

6.1.5. Browse

Encourage foraging, grazing, browsing. It is essential to know that the provided branches / leaves were not chemically treated previously (especially branches from fruit trees, which are commonly fed in winter / spring).

Browsing is very important for the health and dietary demands of an animal and contributes to its overall well being.

Preferred fodder plants at Basel Zoo are: Maple (*Acer* sp.; Ahorn), Beech (*Fagus* sp.; Buche), and branches from fruit trees such as cherry, apple, etc. The variety offered depends on the regional availability of certain tree species. At other places poplar (*Populus* sp.; Pappel), Alder (*Alnus* sp.; Erle), elm (*Ulmus* sp.; Ulme), Willow (*Salix* sp.; Weide) are offered. Plants known to be toxic to the horse should not be fed.

In total it can be stated that more research is needed in order to fully understand the dietary needs (especially with regard to vitamin and mineral supplementation or even basic data such as digestibility, etc.) of Indian rhinos.