

Dairy Management



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Feed – Green & Dry Fodder

- A milking cow needs dry and green fodder in ratio 1:1
 - 5 kg. of dry fodder & 15-20 kg of green fodder for an adult animal
 - Milch cows are given the best & the leftovers given to the others
- Green fodder includes freshly cut forage at the right stage of maturity
 - This supplies the highest quality, most nutritious & most palatable feed possible
 - This should include about 10 kg. of high protein freshly cut forage like Lucerne, cowpea, cluster beans etc.
- Dry fodder is greens which have been properly dried at the right stage of maturity of the plant so that nutrients are preserved
 - If you give only greens, it does not hold well in the stomach. So dry fodder is also required
 - Fat% falls if only greens are fed
- Paddy straw not ideal fodder
 - Cows stomach does not have necessary micro-organisms for digesting
 - Has no protein & of not nutritive value & is actually acidic
 - One has to plant & grow fodder rather than use a by-product
 - More ideal as bedding
 - Chaff, Sprinkle soya cake solution, sprinkle salt for taste, pack & cover tightly like silage & use after a month
- All fodder except Lucerne should be cut into 1 inch pieces using a chaff cutter

Feed - Concentrates

- Grains mainly given to milch cows to increase the milk production
- Grains or Concentrates or other nutritional additives not needed for a milking cow that gives less than 16-18 litre/day
 - Don't give cotton cakes – heavy pesticides used & mostly it is BT Cotton (GMO)
 - General practice is to give concentrate 30-40% of Milk Production e.g, 20 litre/day Cow to be given 8 kg. Concentrate
- The concentrate given at Bhaikaka Dairy is a combination of following
 - Crushed maize & Bajra
 - Maize or soya cake
 - Husk of pigeon pea
 - Amul Dan in pellet form
- If fed good, diverse fodder from good organic soil then concentrates are not required for cow producing 16 liter milk per day

Feed - Mineral

- Mineral requirement – 50 gms./day & Salt requirement – 25 gms./day
 - Give individually, powdered & mixed in rest of concentrate or fodder
 - If given as blocks, takes too much time for them to lick
 - & the bullies will not let other cows lick it
 - If a cow starts licking a chunna wall, Calcium deficiency
 - If they start eating soil or licking bricks, some mineral deficiency
 - If they eat soil, they will get worms in the stomach
- If fed good fodder from good soil then mineral additives are not required
- Sea weed can be given for mineral deficiency or mineral supplement
 - Two varieties black & green from a source in Kutch
 - Cows don't like it very much

Cow Housing

- Categorize the animals age wise & health wise
 - Facilitates feeding as per the different requirements of each category
 - Calves 0-3 months; Calves 3-12 months; Heifers 1 year-2 years; Pregnant animals in Dry cycle; Heavy milkers; Low milkers; Sick animals
- Approx. 300 sq.ft per cow
 - 12 cows in approx. 3000 sq. ft.
- Hard floor, roofed area for milking & feeding
 - Cow to cow spacing 5 ft. in the feed/milking stall
 - Only for milking they are tied here (2 hrs. in morning & 2 hrs. in evening)
 - Allows proper collection of cow washings
 - No mucky conditions esp. in monsoon during milking
- Mangers
 - Should preferably face the road so that feeding can be done from outside without having to enter every time

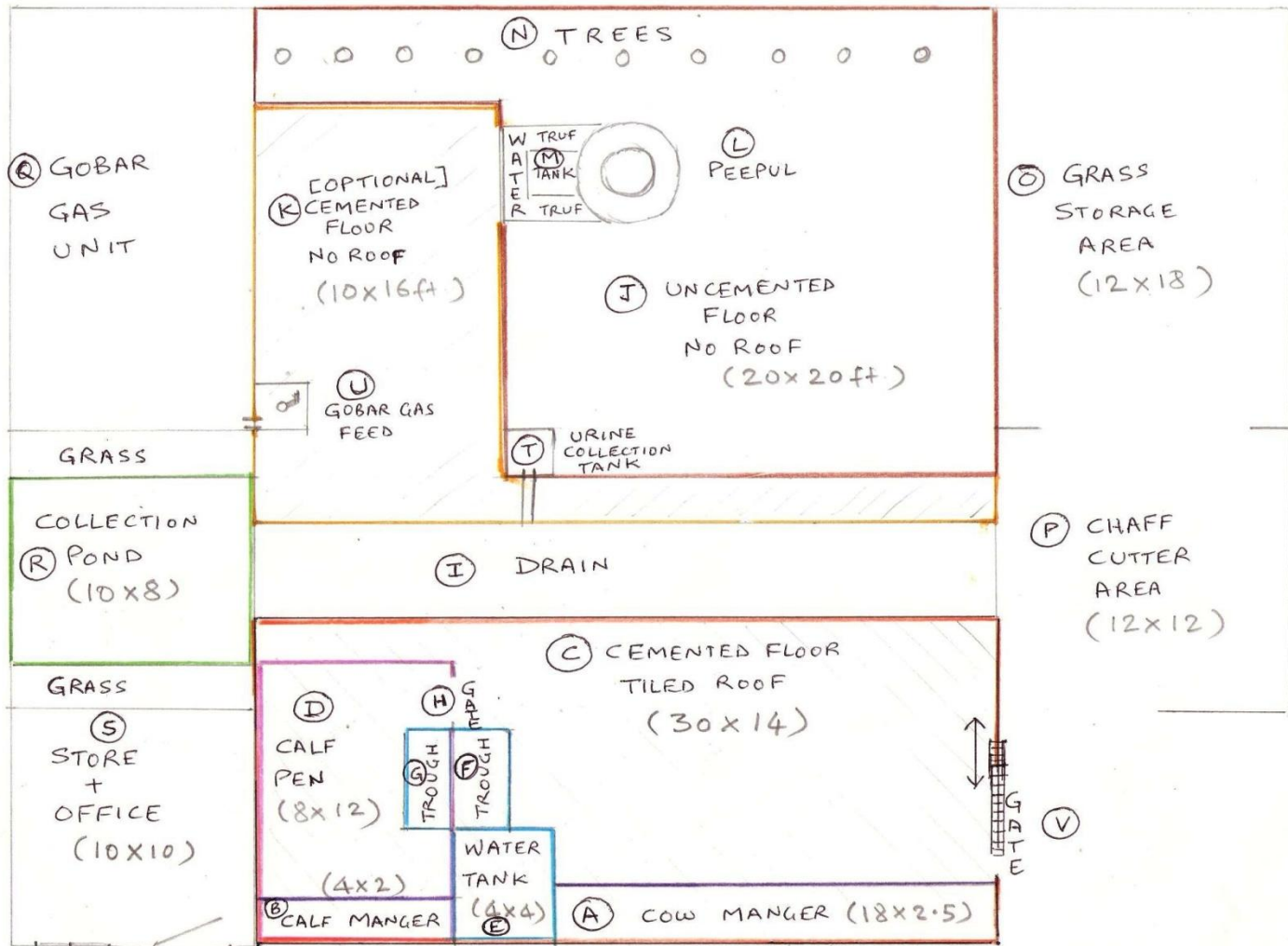
Cow Housing – Other Important Features

- Open area
 - Continuously tying on hard surfaces not good for animals
 - Put layer of saw-dust & leaves
 - Cows love to sit in this area
 - from Oct-May,
 - Urine is absorbed
 - Before monsoon, remove to make compost & add fresh
 - Have trees in this area for shade
- Urine collection pit
 - Very important to collect relatively clean urine
 - Valve operated input which is closed during the time the cows & floor are washed
- Cow washing collection
 - Very important to collect all the nutrient rich cow washings in a pit
 - Have a system to efficiently deliver the cow washings to the fodder & vegetable areas
- Separate calving area very good where they can be housed for the last 15-20 days
- Chaff Cutter Area
- Area for storage of dry fodder
- Water troughs at convenient points so that cows have access to water whenever they are thirsty

Cow Housing – Other Important Features

- For mosquito & insect control
 - Use special yellow bulbs & switch off the white lights
 - Also burn Neem leaves in the evening
- In summer use a pulsator to cool the animals down
 - 4% drop in milk in summer because of heat
 - Increase amount of green fodder to offset this

Cow Housing – Lavout



Breeding

- A good heifer comes in heat when she is 9 months
 - She comes in heat every 21 days
 - If not fed well, the heat cycle may not come up till 2-3 years
- Minimum age when she should be made pregnant is 15 months. Also she should have gained enough weight.
 - Jersey heifer minimum weight : 225 kgs.
 - Holstein cross minimum heifer: weight 286 kgs.
- Ensure that no inbreeding happens
 - Done by changing the bull every 2 to 2.5 years
- A cow can be bred 2 months after a calving
 - Comes in heat within 20 days & every 21 days from there on
 - Miss the first two
 - Allows her to clean up the uterus & allows the uterus & cervix to become normal
 - Also possibility of conception very low. If she gets into false pregnancy XXX, then she will skip her next heat & fool you into thinking she is pregnant – you end up losing time
- Artificial insemination
 - Use sometimes only if bull is not good enough to improve the herd
 - Once every 3-4 years
 - Get one good herd & one good bull out of this & go back to natural breeding
 - At least some cows should be 20+ milk yielders to increase the herd average

Breeding

- Never use a big bull for 1st time calving
 - Pelvic is not yet extended
- Select your own bull from a high yielding cow

Pregnancy

- A good Vet can confirm a pregnancy after 50 days
 - Should be checked after 2 months of pregnancy

Pregnancy - Dry Cycle

- Dry cycle very essential
 - Otherwise milk tissues will not regenerate & milk production will drop if given less time
- Stop milking 2 months before expected calving date
- Last 15 days of pregnancy start giving more dry & less green & concentrate
 - E.g. if you expect to give her 25 kg./per day of green fodder after calving, give only 10 kg.
 - Similarly concentrate only 1.5 kg. at fag end of dry period instead of 3 kg. (twice a day)
- Too much concentrate can cause Udder Edema before calving
 - Fluid will accumulate in the udder
 - Milking becomes difficult
 - Calf will not be able to suck

Calving

- As soon as she starts exerting (i.e. in labor), the placenta will burst & the legs should be seen
 - Put gunny bag or paddy straw on the floor
- Normal delivery takes 15 to 20 minutes after that
- The cow will give the calf a good lick all over which is very good for the calf
 - It helps the calf warm up
 - She may eat the fluid
 - This is high protein & nothing to worry about
- Retain placenta can be avoided with ayurvedic medicine (Replenta) from Himalaya drugs
 - Give with 3.5 kg. jaggery
 - Give 5 kgs. Of cow pea as soon as she delivers
 - Placenta will fall within 6 hours almost 95% of the time

Calving

- If calving takes more than 1 hour, she needs help
 - Wash hands with soap & warm water
 - Put hands in hold both the legs & pull towards back legs of cow
 - If head is not correctly positioned, put hands & correct it
 - Some one should pull head also
 - Pull only when she strains i.e. pushes (every minute)
 - Hold when she is not pushing. Don't pull when she is not pushing
 - Calving not as complicated as it sounds
 - If calf is too big, may need to tie a rope to the legs & more people get involved with the calving
 - A tractor had to be used to pull out a 42 kg. calf
 - The calf would have swallowed stuff. Hang by the back legs & bang hard till the calf gasps & starts breathing again

New Born Care

- Important that mother's milk goes into the calf within 2 hours of calving
 - First milk is called colostrum
 - Has all the anti-bodies & will protect the new born from disease
 - Absorption power in 1st two hours is the best & gradually it becomes less
 - If calf is not able to suck (sometimes mother does not allow), milk by hand & feed
 - If Cow dies, give the milk from the most recent calved animal
 - Good idea to deep freeze colostrum from an old cow (6-7 lactations) so that it can be used for calves in case the mother dies during calving
 - Should be from an old cow (6-7 lactations)
 - Save 2-3 liters if she gives about 8 liters
 - Note that it cannot be boiled (will coagulate). Instead put in hot water

Calf Management - Feed

- Milk
 - As soon as the milking of a cow is done, bring its calf in
 - Leave 1.5 to 2 liters for the calf
 - The sucking by the calf helps collapse the Cow's uterus & she comes in heat more quickly
 - Wean completely after 2-3 months
- Other Feed
 - After 15 days, start giving the calves dry, high protein fodder
 - Dried Lucerne ideal feed
 - Lucerne has 25% protein
 - Also very soft
 - Helps them develop the 4 chamber stomach
 - Don't give them greens
 - Will give them diarrhea (white or green)
 - Their stomachs not developed to digest the greens
- After a month, she will start nibbling & actually start eating properly
 - Will eat about 1 k.g.
 - Will consume less milk
 - More economical 1 liter milk – Rs. 30 where as 1 kg. fodder Rs. 10/-
 - Gain in weight will be better when the calf gets both milk & dry fodder

Calf Management - Housing

- A separate calf pen essential to keep the calves separated
 - Will be brought to the mother only at milking time
- The calf should be separated within 2 hours to calf pen
 - Delaying will make it difficult for mother & calf & both will start yelling
- New borns to 3 month olds are kept in the calf pen

Milking

- Should be completed in 5-7 minutes
 - The Oxitoxin hormone level falls to $\frac{1}{2}$ the quantity in 7 minutes & milk is drawn back to the milk sac
- Milk drops 3 months after pregnancy
 - 2 to 2.5% drop every week
- A good well fed cow can give milk for 2-3 years without another calving

Herd Management – Categorization & Documentation

- Categorization
 - 0-3 months
 - 3-6 months
 - 6-9 months
 - 9-12 months
 - 12-18 months
 - 18-24 months Heifers
 - Above 24 months
- Document
 - Cows 1st lactation total yield & average for that year
 - Same for subsequent lactations
 - Total herd average

Herd Management – Cow Selection

- Legs should be perpendicular – 3 % Marks
 - Otherwise liable to slip & have difficulty calving
- Milk vein should be prominent – 5 %
 - 400 liters of blood circulation through the udder gives 1 liter of milk
 - Thicker the vein, more milk will be produced
- Back (i.e. behind the hump), should be straight – 3 %
 - A hunched spine will be troublesome just like in humans
- Pelvic bone should not be too close – 3% Marks
 - Otherwise difficulty with calving
- Coat should be shiny – 1% Marks
- Udders should be compact i.e. neither too long or short – 3 Marks
 - Long hanging udders liable for injury
 - Short will make milking difficult
- Milk production should peak as late as possible e.g. 2 months after pregnancy
- In Europe, when they sell the Semen, all above details are available. In addition
 - Milk production of mother, paternal grand mother etc. available

Herd Management - Misc.

- Bullies need to be taken out & given exercise
- Male calves
 - Keep it from a cow giving good milk (28 liters/day)
 - Getting your own Bull Tips XXX
 - Rest are given away to NDDDB project
- Do not dehorn
 - Misconception that they will hurt each other
 - Was done at 2 months but after going Biodynamic, completely stopped
 - Noticed that Cows have become much calmer
 - Except for some gentle jostling & a few scratches no noticeable damage

Health

- Vet is usually required for pregnancy check rarely for disease control
- Cow giving less than 20 liters/day rarely susceptible to disease & need less maintenance
- Cross breeds are quite disease resistant
- Foot & Mouth
 - Before 2000, outbreak every 3-4 years in spite of vaccination
 - Fish water applied works better than glycerin
 - Conceiving becomes difficult after that
 - After becoming organic, no outbreak in spite of no vaccination
- Worms in stomach (Pot Belly)
 - For calves treat every two months
 - Treatment
 - Don't feed 1 day before full moon
 - Next morning give garlic
 - 1 garlic clump smashed lightly & soaked in spoonful of natural (apple) vinegar
 - 1-2 cloves for 2 month calves
 - Night don't feed anything
 - Next morning again garlic

Health

- Diarrhea
 - Usually the very young ones (up to week old) will not get it unless you give them green fodder
 - Give only warm water
 - Don't give the calves any milk
 - If improvement after a day, give half milk & half warm water
 - May go on for two days
 - Don't worry, she will be weak but it will stop without any medicine
 - Only if it continues beyond 2 days, need to call the Vet
 - Usually will come in control within 2 days because it is a confined situation
- Edema
 - Don't give greens or concentrate for 3 days
 - This will also prevent milk fever, weakness etc.
 - Give ice packs & alternate with warm water
 - Homeopathic medicine 3 days
 - 500 gms. Organic jaggery boiled in water for 10 days
- Flea, Ticks
 - XXX

Grooming

- Brush the animals in winter once a week
 - to give a shining look
 - also helps to improve the blood circulation

Marketing

- Milk is delivered door to door in the town
- Higher price of 25% is got from what is got from Amul
- Also given to a hospital and local sweet maker

Desi Cows – Gir Cow

- Disease resistant – rarely get sick
- Eats less
- Cow Dung, Urine quality very high
- Milk can fetch premium of Rs.4-5.
 - Ayurvedic doctors claim that milk is 100 times more nutritious & has more medicinal properties
- Difficulty with getting them pregnant
- Milk yeilds are lower average 12 liters/day for 7 months against 16 litres/day for 10 months for Jersey /Holsteins

Poultry For Dairy Management

- 30-40 birds for a herd of size 100 animals
- Free running in the cow shed
 - Will eat the fleas & worms & keep the cow shed clean
- A small cage for them to roost at night
 - All eggs will be collected in this instead of all over the place
- Desi birds best
 - Eggs are very tasty
 - No need for vaccinations for Ranikhet disease etc. if feed is organic