Package Of Practices for cattle and Buffalo

India has huge livestock population with huge potential to support growth of Indian economy. Among many limiting factors in development of this sector is the fact that majority of livestock farmers are unaware about the package and practices to be implemented for maintaining good health to their animals. A good package and practices for maintaining health and productivity of livestock is required and awareness among animal farmers can bring revolutionary change in this sector. With this as objective, package and practices for different strategies for maintaining health and productivity of animals has been attempted and advised to be implemented under strict supervision of a veterinarian.

Package and practices for vaccination:

1. Animal diseases cause huge losses to livestock industry. Prevention of these diseases is possible by protecting the animals by prophylactic and strategic vaccination.
2. "*Prevention is better than Cure*" is age old proverb which proves its worth by routine vaccinating
3. Vaccination is done at specific age and at definite time interval against specific disease(s) using 'vaccine' to give optimal protection to the animals.
4. Preferably deworming should be ensured at least one week in advance before vaccinating.
5. Vaccination schedule may vary depending on the prevalence of disease

What to Do:

- Deworm must be done at least one week before vaccination and follow schedule.
- Use only sterilized disposable syringes and needle; administer either SC or IM only.
- Always follow the instruction given by the vaccine manufacturer
- Ensure vaccine is not expired and cold chain (2-8Â° C) is not broken.

What to Avoid:

- Avoid vaccinating sick and weak animals.
- Avoid stressing the animals until 2 weeks post-vaccination.
- Avoid administering antibiotics & immunosuppressant until 2 weeks post vaccination.

Routine Prophylactic schedule for Domestic animals

Disease and animal	Vaccine	Dose and Method	Age and time of vaccination
FMD: Cattle, Buffalo, Sheep, Goat, Swine	FMD inactivated polyvalent vaccine	Cattle, Buffalo and Sheep: 2 ml Goat and Swine: 1 ml Method: IM route	First dose at 4 month of age Booster: at 6 month of age Repeated every 6month interval Appropriate time: March-April and Sept.-October
PPR: Goat and sheep	Live attenuated PPR vaccine	Sheep and Goat: 1 ml Method: S/C route	First Dose at 4 months of age Revaccinate once in 3 years Avoid vaccination in advance pregnancy

Rabies In all species of domestic animal	Inactivated cell culture vaccine	In all species: 1ml Method: IM route	Rabies vaccine in domestic animals is given only after bite from suspected rabid dog **Schedule**: day 0 of the dog bite, 3rd day, 7th day, 14th day, 28th day, 90th day
Sheep and Goat Pox: Sheep and Goat	Sheep and Goat pox vaccine	Goat and Sheep: 0.3 gm triturated vaccine mixed with 30ml Glycerine for 100 animals. Method: S/C or IM route	First dose at 3 months of age Booster repeated every year
Swine fever: Swine	Lapinized swine fever vaccine	Swine: 1ml Method: IM route	First Dose at 2 months interval Booster every year
Haemorrhagic speticemia: Cattle, Buffalo, Sheep, Goat and Swine	H.S oil adjuvant vaccine	Cattle and Buffalo: 3ml Sheep, Goat, Swine and calves: 2 ml Method: IM or S/C route	First dose at 4-6 months of age. Booster repeated every year preferably before rainy season (May-June)
Anthrax: All domestic animals	Anthrax live spore vaccine	Cattle, buffalo and horse: 1ml Swine, sheep and Goat: 0.5ml Method: IM route	First dose at 6 months of age Booster repeated every year preferably in the month of May to June
Black Quarter: Cattle, buffalo, sheep and goat	PolyvalentÂ B Q vaccine	Cattle and Buffalo: 5ml Sheep and Goat: 2-3ml Method: S/C route	First Dose at 6 month of age Booster repeated every year, preferably before monsoon season
Brucellosis: Cattle and buffalo	*Brucella abortus* Strain -19 live vaccine	Cattle and Buffalo:Â 2ml Method: S/C route; Do not vaccinate male calves and pregnant animals	Single Dose at 4-8 months of age
Tetanus: All domestic animals	Tetanus toxoid vaccine	Cattle, buffalo and horse:Â 1500-3000 units Swine, sheep and goat: 500-	First Dose: First dose at 1 month of age Booster at 6 month interval. Pregnant cattle, buffalo and horse: 6-7 months of gestation Swine at 2-3 months of age Pregnant Sheep, goat, swine at 3-4 months of gestation

		1500 units Method: IM route	
Enterotoxemia: Sheep and Goat	Entertoxemia vaccine	Sheep and Goat: 3-5 ml Method: S/C route	2 doses of vaccine at 21 days interval and repeat annually with two doses of vaccine at 21 days interval
Equine Abortion: Horse	*Salmonella abortus equi* vaccine	Horse: first two doses 10 ml and third dose 20ml and to be repeated at 10 days interval Method: IM route	Booster every year

Package and practices for control of endoparasite:

1. Endoparasites in general are responsible for poor weight gain, depraved appetite, reduced fertility and stress to the animals.
2. Control of endoparasite is possible by regular prophylactic deworming of animal using potent anthelmintic.
3. Anthelmintic should be used based on age, gestational status and species of the animal.
4. Preferably, anthelmintic should be changed at frequent interval, to avoid resistance in animals.
5. Therapeutic dewroming should be done based on faecal examination and eggs per gram.
6. Maintaining good hygiene and sanitation of animal houses and feeders is very important to control parasitic load in stall-fed animals
7. Rotational grazing is important in control of parasite in pasture grazed animals.
8. Vector and intermediate host control is also important aspect for control of endoparasite.

Deworming Schedule for livestock

S No	**Endoparasite**	**Name of parasite**	**Anthelmentic**	**Dose**	**Route**	**Remarks**
1	Round worms	*Ascaris*	Piperazine (45mg/100ml)	30ml for cattle, buffalo, horse, calves, sheep & goats	Oral	First dose to be given within 5â€• 6 days of birth Repeat at 45 days intervals.
			Tetramisole	15mg/kg body weight	Oral Single dose	
			Morantel Citrate	10mg/kg body weight	Oral	
			Levamisole	7.5 mg/kg body weight	Oral, once	
2	Flat (Fluke)	Liver fluke	Oxyclozanide	10-15 mg/Kg body	Oral,	Deworm at 4-6

	Worms	Amphiostome		weight	once	month interval
			Fenbendazole	5-7.5 mg/Kg body weight	Oral, once	
			Albendazole	5-10 mg/kg body weight	Oral, once	
			Tricalbebdazole	10-12 mg/kg body weight	Oral, once	
			Rafoxanide	7.5mg/kg body weight	Oral	
3	Tape Worms	Cestodes	Dichlorophen	0.5 mg/kg body weight	Oral	Deworm at 4-6 month interval
			Albendazole	5-10 mg/kg body weight	Oral, once	
			Fenbendazole	5-7.5 mg/kg body weight	Oral, once	

Package and practices for control of ectoparasite:

1. Ectoparasites are responsible for economic losses to livestock producers
2. Direct losses are as a result of distress and damage to hides and fleeces caused by the parasite
3. Distress results in decrease in milk production and poor growth rate
4. They can also cause direct damage to hides and wool
5. Indirect losses are from diseases transmitted by the ecto-parasites
6. Annually in a farm pesticide application should be carried out at 4 month interval.
7. The pesticides used of ectoparasite control are poisonous and should be kept away from reach of children and farm animals.
8. Avoid application in adverse weather
9. Provide plenty of drinking water before application to prevent animals from licking after application

List of important diseases transmitted by ectoparasite

S No.	Ectoparasite	Important disease Transmitted
1	Ticks	Babesiosis, Anaplasmosis, Theileriosis
2	Flies	Mastitis, Keratoconjunctivitis, Trypanosomiasis
3	Midges	Bluetongue, African Horse Sickness

Common pesticides used for control of ectoparasite in animals:

Pesticides	Uses	Doses
Cypermethrin 10% w/v	Ticks, lice, flies, mites, midges and keds	Dilute 1 ml to 2ml in 1 litre of water and apply on whole body as spray or bath Repeat after 15 days to kill the newly emerged larva and

		adults from egg **For Animal Houses: Dilution rate is 20ml/lit of water
Deltamethrin 12.5mg/ml	Tick, lice, mite, flies, keds, etc.	For Tick: Dilution rate 2-3 ml/Lit of water For Mites: 4-6ml/lit of water For Lice: 1-2ml/lit of water For Fly: 2-3ml/lit of water
Amitraz 12.5% w/v	Tick, Fleas, Mange, lice	Dilute 2-4ml per lit of water and spray or wash all over the body. Repeat the application 3 times at 15 days interval
Ivermectin 1% w/v	Sarcoptic Mange	Dog: 0.2 ml/33 KgÂ body weight Pig: 1ml/33 Kg body weight Other Animals: 1ml/50 Kg body weight by s/c route

Package and Practice for Pica in animal

1. Pica is a disturbance of appetite, food intake or nutritional status in domestic animals. It is most commonly observed in cattle, buffalo, pigs, horse, sheep, goats, dogs and cats.
2. Pica is most commonly associated with dietary deficiency of bulk or more specific nutrients like fiber, individual nutrients like salt, cobalt or phosphorous.
3. Miscellaneous factors like boredom, chronic abdominal pain and brain disturbances (like rabies, nervous acetonemia) are also responsible.
4. Affected animal either eats or drink material other than normal food. Animal may chew bones (Osteophagia), feces (Coprophagia) or infants (Infantophagia).
5. Sheepâ€™s generally eats wood, barks, carrions etc.
6. Salt hunger in cows/buffalo leads to coat licking, leather chewing, and earth eating and drinking of urine.
7. Pica may lead to serious consequences in animals in the form of death of newborns in cannibalism, poisoning (lead or botulism).
8. Lodgment of foreign bodies in alimentary tract or accumulation of wool or fibers or sand may cause obstructions.
9. Ingestion of sharp foreign bodies may lead to perforation of esophagus or stomach or occasionally traumatic reticulitis in cattle.
10. Ingestion of foreign object like polythene bags, garbage may leads to several digestive problems like impaction in animals.
11. Pica causes perverted appetite which deleteriously affects growth, reproduction and productivity of animal ultimately incurring economic losses to a farmer.
12. Pica can be treated by inclusion of different nutritional factors specially phosphorus and deworming with potent anthementic and observing its clinical response.
13. The syndrome of Pica can be prevented by providing properly balanced ration with inclusion of trace minerals, salt, roughages etc.
14. Animals should be provided with roughages like straws or hay. Diet should be supplemented with some vegetables or fruit pulp.
15. Blood analysis of trace minerals might help to rule out any deficiency and to cure it by supplementation of diet.

2. **Package and Practice for drying of lactating cows**

1. Dry period of lactation cycle is a critical time for the udder health as well as milk production in following lactation.
2. During dry period cows body undergo different nutritional, metabolic and mammary changes which have profound impact on health and productivity in coming lactation.
3. Length of dry period in cattle affects milk yield in subsequent/coming lactation. So, lactating cows should be dried off at right time and for the appropriate length of time for maximizing the milk yield in the next lactation.
4. The ideal dry period varies between 6 to 8 weeks in cows.
5. Dry period of less than 6 weeks reduces the milk yield of cow in subsequent lactation while of more than 8 weeks put cows to excessive weight gain and reduced production efficiency.
6. When breeding dates are uncertain, it leads to either too short or too long dry periods, so accurate breeding records should be kept to dry cows on correct time.
7. Management programs like vaccination, hoof care, nutritional monitoring during dry period should be followed to prevent occurrence of various infectious and metabolic diseases around time of parturition.
8. Intra-mammary treatment with long acting antibiotics during dry period commonly known as "*Dry Cow Therapy*" helps to reduce the udder infections around parturition and so helps to prevent losses of milk. Intra-mammary preparation like SPECTRAMASTÂ® DC to each teats can be very effective.
9. Application of teat sealant (both internal and external) after antibiotic infusion is also very beneficial in prevention entry of infection into teat.

Package and practices for Coccidiosis:

- Coccidiosis is very common protozoal disease, caused by Eimeria spp.
- Commonly a disease of young cattle (1-2 month to 1 year) and poultry birds
- Usually occurs during the rainy and winter seasons of the year and stress acts as pre-disposing factor.

Drug dose schedule for treatment and prevention:

Drug	Treatment	Prevention
Amprolium Sulfaquinoxaline	10 mg/kg/day for 5 days 13.2mg/kg/day(3-5days)	5 mg/kg/day for 21 days

Package and practices for neonatal antibiotic coverage

1. Young ones of cow, horse, sheep, goat and pigs are susceptible to contagious bacterial infections as well as opportunistic bacteria present in the environment.
2. Neonates are more prone to bacterial infection during early age due to immature immune system, so antimicrobial therapy is a cornerstone of treatment of neonatal infections.
3. The most common infections occurring in neonates include diarrhea, pneumonia, septicaemia, endotoxemia, omphalophlebitis, osteomyelitis, meningitis, septic arthritis etc.
4. As sepsis progresses very rapidly in neonates, it is of utmost importance to start antibiotic therapy as early as possible upon anticipation of sepsis.
5. Generally broad spectrum antibiotic coverage should be started pending the results of culture and sensitivity.
6. Bactericidal drugs are mostly preferred to treat neonatal infections taking into consideration the immature immune system of neonates.
7. In cases of neonates generally large doses with longer dosage interval are administered to achieve optimum pharmacokinetic parameters to increase efficacy of antibiotic treatment.

Commonly used antibiotics in neonatal calves

S No.	Drugs	Dose regime
1	Ampicillin Sodium	5-10 mg/kg PO or IV every 12 hrs.
2	Ceftiofur Sodium	10 mg/kg PO or IV every 12 hrs.
3	Enrofloxacin	2.5-5 mg/kg PO or IV every 12-24 hrs.
4	Erythromycin	2.2-4.4 mg/kg PO
5	Gentamicin	4 mg/kg IM or IV every 12 hrs.
6	Trimethoprim-Sulfonamide	15-30 mg/kg IV every 12 hrs.

Commonly used antibiotics in neonatal foals

S No.	Drugs	Dose regime
1	Amoxicillin trihydrate	25 mg/kg PO every 6-8 hrs.
2	Amoxicillin-Clavulanate	15-25 mg/kg IV every 6-8 hrs.
3	Ampicillin sodium	10-20 mg/kg IV or IM every 6-8 hrs
4	Ceftiofur sodium	10 mg/kg IV every 6-8 hrs.
5	Enrofloxacin	5-7.5 mg/kg PO or IV every 12-24 hrs
6	Trimethoprim-Sulfonamide	15-30 mg/kg IV every 12 hrs.

Package and practice for Fumigation of animal houses

1. Prevention is the best strategy ever.
2. Fumigation practice is most commonly followed in animal houses where houses are generally fumigated before stocking of new batch.
3. Fumigation is a technique for the disinfection of a shed so that fresh batch of birds/animals will get the disease free environment and to check the vermin population in the animal houses.
4. Fumigation is generally done with mixture of potassium permanganate and formalin (3:5). Flaming is another suitable technique with minimal cost input. Gluteraldehyde is also effective disinfectant for animal houses.
5. Fumigation is generally done in the evening