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Dr. Ahmad Fahim has completed his B.V.Sc & A.H. in the year 2009 from Govind Ballabh Pant University of Agriculture and Technology, Pantnagr, Uttarakhand, India. He got admission in a master's degree program in the subject of Livestock Production Management at Indian Council of Agricultural Research-Indian Veterinary Research Institute, Bareilly, Uttar Pradesh, India after securing 29th rank in All India ICAR-JRF examination. He has completed his Masters degree in the year 2011 and carried out research work on "Phenotypic Characterization of Rohilkhand Local Goats". He has completed his Ph.D. degree in the year 2016 from the ICAR-National Dairy Research Institute, Karnal. His PhD dissertation work was on "Parlour Performance, Udder Health and Milk Quality of Crossbred Dairy Cows in Automated Herringbone Milking Parlour". He was selected as Assistant Professor in the Department of Livestock Production Management, College of Veterinary and Animal Science, Sardar Vallbbhai, Patel University of Agriculture & Technology, Meerut, Uttar Pradesh, India in the year 2014. He has in his credit more than 40 research papers, 3 books and other publications. He is a member of Indian society of Animal Production Management and actively participates in conferences/ symposiums/ workshops held during the year. He is on panel of experts for framing question papers for various Universities.

Description

This lecture note was prepared and delivered to B.V.Sc.& A.H. students studying the course of Livestock Production Management. The course is offered during the first professional of the academic year at College of Veterinary & Animal Sciences, Sardar Vallabhbhai Patel University of Agriculture and Technology, Meerut, Uttar Pradesh, India. This lecture provides an over view of care and management of draft animals and male stock under livestock production practices, especially in tropical and sub-tropical countries. I had tried my level best to extract the contents simplify the facts in easy to memories in very short time. Further constructive suggestions to improve this lecture note are always welcome its users on my email and WhatsApp.

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Care and Management of working/draft purpose animals

DAP: Capacity to generate power by the animals

- ✓ Horse – 1
- ✓ Bullock – 0.75
- ✓ Cow – 0.45
- ✓ Mule – 0.75
- ✓ Donkey – 0.35

Work output: Total amount of energy delivered by the animal to accomplish a particular task.

- ✓ Expressed in KWH

Tractive force

- ✓ 10-14% of body weight (bullock)
- ✓ Increase in speed cause reduction in tractive force (DAP = Force X Speed)
- ✓ Speed of walking 1 m/sec
- ✓ Average speed of pair of bullock pulling a cart is 4-5 km/hr
- ✓ Average distance 25-30 km (depend on favourable conditions)
- ✓ Average time of use 5-6 hrs
 - Weather conditions
 - Type of harness
 - Equipment used
 - Load on the animal
 - Expertise of driver
- ✓ Average draft (weight on neck) 1/5 to 1/6 of body weight
- ✓ A farmer with land holding of 5 hectare need a pair of good bullocks for cultivation and transport over the year.

Draft bullock

- Good carriage and disposition
- Easy natural gait and pace
- Health and vigour: Head erect and tail high at work
- Docile temperament: Castration
- Pair should be of same size and temperament
- ✓ Size, height and length
- ✓ Body: Muscular
- ✓ Back: Levelled
- ✓ Neck
 - Thick and muscular neck - Draft capacity
 - Slender and sinewy neck – Speed
 - No yoke galls
- ✓ Hump: firm and plump
- ✓ Legs: Strong, thick bones
- ✓ Hooves

- hard, black and waxy
- 2 halves even with narrow cleft
- no malformation/defects. Lameness
- ✓ Tight skin

Management

+ Training

- ✓ Started at the age of 2-3 years (depending on body size). Start working at 4 year age.
- ✓ Rough treatment (abusing, beating etc.) avoided
- ✓ Initially for light work. Later for heavy work and ploughing
- ✓ Kindness

+ Feeding

- ✓ Based on body weight and work @ 2% b.wt.
 - Moderate work
 - Heavy work
- ✓ Animal should be lean and thrifty

+ Grooming

Machines versus Draught Animal

- Cropping season: 30 days during Kharif and 30 days during Rabi
- 70 million bullocks exclusively used over 60 days
 - cultivation: 6 hr each day. total power output of 9450 million KWH or units
- Used for 100 days in a year for all purposes together (cultivation and transportation).
 - total work output of average working bullock in a year - 15750 million KWH or units.
- One bullock pair can cultivate some 0.33 ha in a 6 hr working day.
 - For cultivating 176.66 million ha (gross cropped area in 1987) over a 60-day period, the work animal force required is only 8.6 million pairs of bullock.
 - (India's total geographical area is 329 million hectares. Out of this, 195 million hectare is gross cropped area and 141 million hectare is net sown area. On the other hand, net irrigated area is only 65.3 million hectares. Rest of the land is rainfed)
- Tractors in India are committed to crop production only for 30 to 60 days and available for other use over a 300 to 330 day period, in a year (Anon, 1996).
- A 35 HP tractor can plough (mould board plough) some 2.5 ha in an 8 hr shift and would consume some 4 to 5 lits of diesel per hr for such operation (most heavy task is chosen).
 - 176.66 million ha of land can be ploughed over a 60 day period, by some 1 million tractors working one shift per day or 0.5 million for two shift per day.
- In 1987, India had somewhere between twice to four times the number of DA's than was necessary to cultivate the total gross cropped area of 176.66 million ha.
- In 2010, when gross cropped area is expected to increase to some 200 million ha, the country has surplus of draft animals for cultivating land, even at their present population size.
- Land cultivation is partly by the increased number of tractor and power tillers but largely by draft animals.

Reasons for wastage in draft animal potential

1. Availability of poor breed of DAP
2. Under utilization and misuse of animals
3. Injurious and less efficient harnesses
4. Poor feed and lack of health care coverage
5. Inefficient conversion of draft efforts into work due to poor design of implements
6. Use of inefficient traditional animal carts
7. Improper management of DAP.

Care and Management of bulls

- Half the herd
- Breeding age – 2.5 years.
 - Breeding efficiency increases up to 4 years and maintained up to 6 years. Usable life 11 years
- Selection of bull
 - Superior pedigree: Milk traits for selection
 - Breed character
 - Healthy, masculine , vigorous and docile
 - Free from physical deformities
 - Free from TB, Vibriosis, Trichomoniasis, Brucellosis
 - Semen quality
- Breeding
- 1 bull for 50-60 cows
- Number of services – once/ week, twice or thrice in mature bulls
- Housing and care
- Feeding
 - Should not be overfed or underfed
 - DM @ 2% b.wt.
 - Good roughage: Legume hay @ 1% b.wt. + 2-3 kg concentrate (@ 0.5% b.wt.)
 - Young bull: sufficient green
 - Concentrate allowance increased during breeding season
 - Preventing reproductive problem and sterility
 - Crude cotton seed not used (Gossypol)
 - Avoiding phosphorus deficiency
 - Zn and Vitamin A supplementation
 - Enough calcium in ration (semen production)
- Sufficient exercise: Bull exerciser
- Ringing 1 year age
- Trimming of hooves
- Grooming and brushing
- Recording body weight: Monthly
- Teasing avoided
- Prepuccial hair: clipped
- Periodic screening and testing of bull
- Routine vaccination and deworming
- Regular spraying of insecticides

Maintenance of libido in bulls

- There are several factors which can reduce libido in bulls like young or old age, inexperience, tiring exercise, or too frequent usage, semen collection at unusual places in un favourable conditions and using unsuitable fittings, faulty feeding, obesity or run down condition, inherent defects, temporary injury or chronic defect of legs, back and penis. All such problems should be rectified as soon as noticed.
- Some bulls are sensitive to artificial vagina whereas others seem able to withstand considerable rough handling.
- The well known reflexes of mounting the cow, projecting the penis, thrusting and ejaculation can easily be retarded or even inhibited in a bull by unnatural method of handling.
- Majority of the bulls serve well in familiar surrounding and are handled by the same attendant provided these are associated with previous satisfactory experience.
- The sexual reflexes can be inhibited by painful, uncomfortable or even distractive situation.
- In a sensitive bull, inhibition may develop quickly, even when collections are taken carefully.
- The animal should be give rest from collection for as long as possible when inhibition starts developing. This can be overcome by changing the surrounding.
- Overwork is common in young bulls allowed free access to cows and heifers.
- The number of services and not the number of cows served is the important consideration. No bull should be allowed to serve each cow more than twice in a heat period.
- A young bull may be placed with 2 or 3 cow per week and it can be put into service after 2-2 ½ years of age.
- A mature bull may ejaculate many times per week without effect on libido or semen quality.
- The bull with reduced libido should be teased by delaying the service. Bulls become bored in their surrounding, particularly if in small paddock and may lose interest.
- Presence of another bull or change in the surrounding will overcome this problem.
- Summer stress leads to low sexual libido and poor semen quality, especially in purebred exotic and crossbred bulls.

- To overcome such problems during summer, bulls should be housed in cool, well ventilated dry sheds.
- Showering or splashing cold water on bull 2 or 3 times during hot part of the day and protection against direct and reflected radiation were found to be very useful.