Animal Husbandry

Animal Husbandary

Animal Domestication

→ Transfer of wild species from their wild habitat to local habitat.
→ First domesticated animals was dog. (20,000 yr ago)
→ Second domesticated animals was goat.

Domestication :→

→ Total 70%
→ But only 25% contribution
  → Due to conventional technologies.
  → Due to ethical treatment of animals.

I.T.T ⇒ Oxytocin → Milk ejecting hormone
(Banned in India) ↓ contracts myoepithelium
↓
Milk comes out.

"Stibesterol"

→ synthetic non-steroidal isterogen.
→ Diethylstilbesterol
→ Milk production in sterile cow.

DAIRY PROCESS

→ Selection of good quality breed [→ High yielding, → Diverse resistant]
→ Proper farm conditions.
→ Adequate water and air supply.
→ Quality and quantity of fodder.
→ Mechanised processes.
→ Regular visit of a veterinary doctor.
→ In India 35 types of breed of cow are found.

Cattle : Bos indicus

→ Cow, bull, calf, bullock / Ox
→ Milk, Meat ⇒ Beef ⇒ India → 1st Rank in Beef export.
→ India has first rank in total milk production.
→ Cow milk production ⇒ 1st Rank ⇒ USA
→ U.P is first in Milk production in India.
→ Second in Milk production in India.
→ Calf → "Veal" ⇒ less lipid or lipid less.
⇓
"Renette ⇒ emulsifire
→ Collagen fibre —Hydrolysis→ Gelatin (Jam, Jelly)
→ Max. fat content → Beef

Buffalo → Milk
→ Meat → Buff (Padwa in Nepal)

Sheep, Goat → Meat = Mutton

→ Pig is the reservoir of swine flu virus (H1N1)

→ Pig is the intermediate host of Taenia solium.

Animal Breeding
→ Productivity ↑
→ Quality ↑

Inbreeding
→ Breeding between closely related animals of same breed but having at least one common ancestor upto 4-6 generations

Out breeding
→ Breeding between closely related animals.

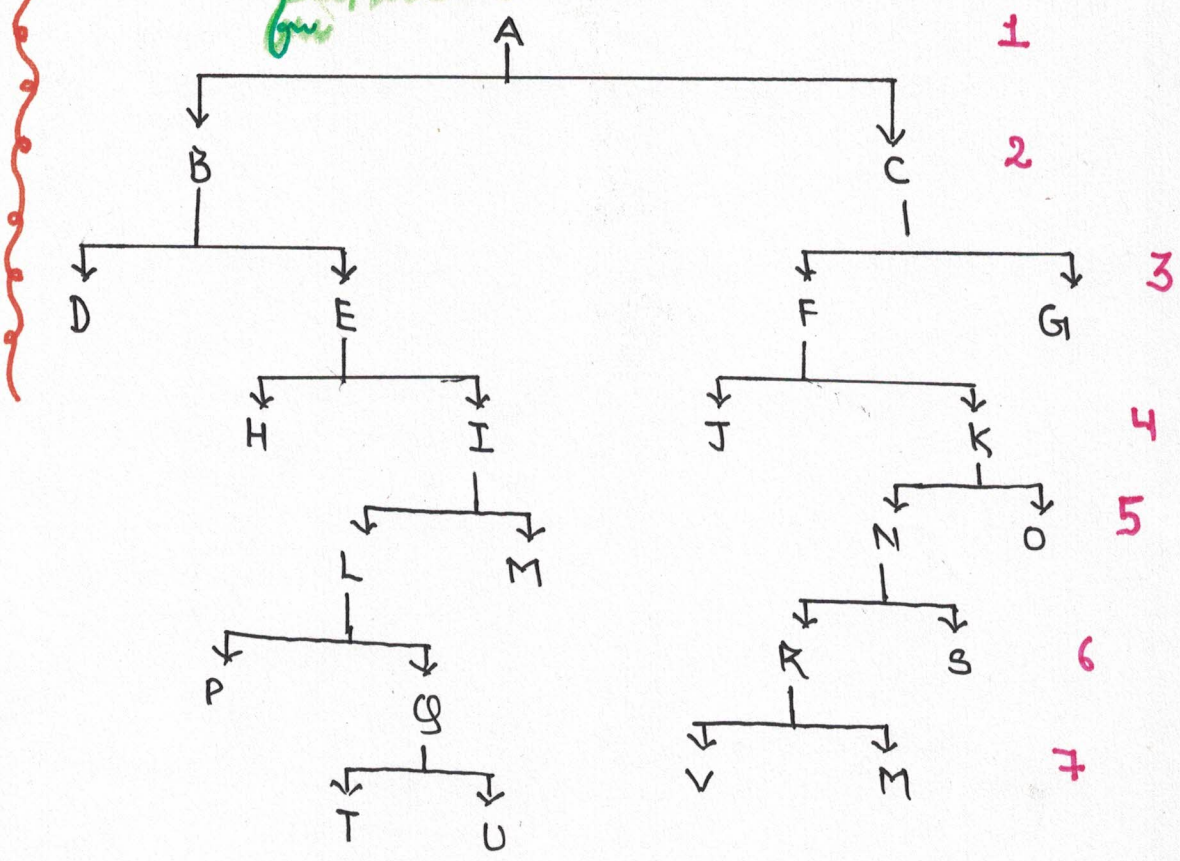
1) **Out Breeding :-** Breeding between animals of same breed but having no common ancestors upto 4-6 generations on either side pedigrees.

2) **Cross breeding :-** Breeding between animals of two different breeds.

3) **Interspecific hybridisation :-** Breeding between animals of two different species.

Genus → Species 1, Species 2 → Unrelated

Pedigree



INBREEDING :→ 200 cows + bulls.

→ 10 superior cow ♀ × 10 superior bulls ♂
→ Disease resistant
→ High Yielding
→ ♀ cow gives birth to 8 calves in her life span.

8 × 10 Calves

10 superior ♀ × 10 superior ♂

8 × 10 Calves

• Inferiors get avoided

→ Mutation is not common

→ Animal Character → Gene → Dominant : T, R, A, B, C, D
→ Recessive : t, r, a, b, c, d

A A or a a → Homozygous
A a → Heterozygous.

Aa ♀ × Aa ♂

AA | Aa Aa | aa

↓ 50%. 50%.

AA | Aa Aa | aa

↓ 25% 75%.

Benefits of interbreeding

1) Productivity ↑
2) Quality ↑
3) Homozygosity ↑
4) To obtain purelines
5) Elimination of harmful genes.
6) Accumulation of superior gene.

Bb ♀ × Bb ♂

BB Bb Bb b b

Harmful recessive Homozygous

⇓

effect show

⇓

disease / disorder

Productivity ↓
Quality ↓
Fertility ↓

Drawback :- Inbreeding depression

Out Crossing

Bb ♀ × Bb ♂

BB Bb Bb bb ×

↓

Bb / Bb

Cross-breeding (Heterosis)

Marino ram ♂ × Bikaneri ♀

wool ↑ Ewe wool ↑

cold climate ↓ warm climate

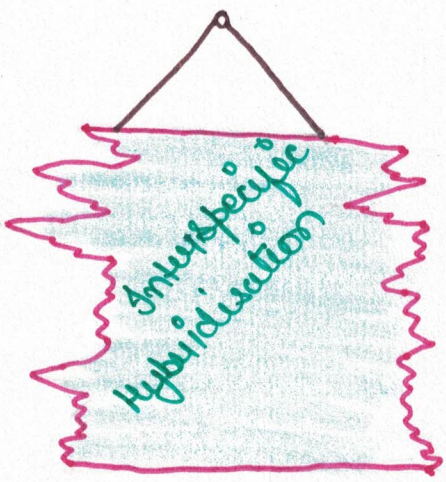
Hissardale wool

warm climate ↑

Jersey Milk ↑ × Sindhi Milk ↓

↓

Jersey - Sindhi] No hump on hybrid cow.



Horse ♀ × Donkey ♂

Strong legs ↓ Hard worker

A.I

Mule (खच्चर)

→ Strong legs

→ Hard worker

→ Sterile → peaceful

Horse ♂ × Donkey ♀

↓

Hinny

→ week

→ Sterile → Peaceful

Newer technologies

Artificial insemination (A.I)

Multiple ovulation Embryo Transfer technic (M.O.E.T)

Genetic Mother
↑
Superior —F.SH like Hormone→ 6 – 8 Ova —Insemination (superior bull or A.I)→ 6 – 8 Zygote —cleavage→ 8 - 32 celled stag embryo

↓ Removal of embryos non surgically — Embryo transfer

A ← B C D E F G H

A to H — 10 Months

technique: "Surrogacy"
↓
first in canada in human.

8 superior calves

Poultry

→ India's best broiler = Aseel
→ world's best broiler = Plymoth rock
→ world's best layer's = leghorn (270 eggs/ year)
→ Aseel is best edible bird & game bird.

- **Common disease of poultry**

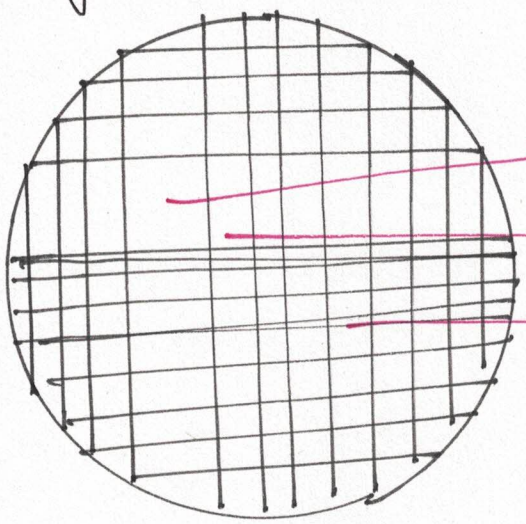
i) Viral → Fowl/ pox, Bird flu (H_5N_1 virus). Ranikhet

ii) Bacterial → Fungal :→ thrush.

APICULTURE / BEE KEEPING

Honey → More amount
Wax → Less amount

→ Poly morphic, colonial, labour division, Eusocial



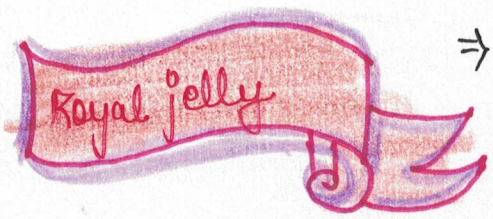
→ Royal chamber → queen
→ Drone chamber = Male
→ Worker's chamber.

"Beehive"
||
Pollen grains + wax
||
Propolis

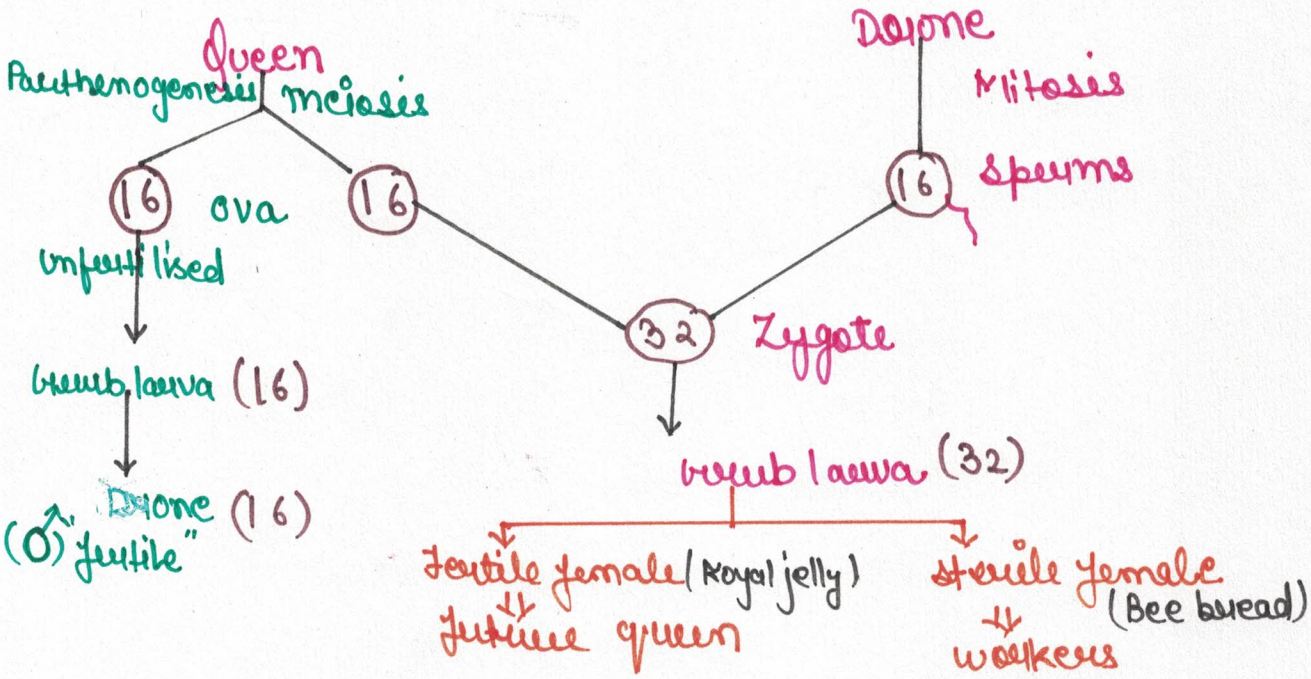
Character	Queen ♀	Drone ♂	Worker ♀
Size	Largest	Small	Smallest
Sting	Present	absent	Present
Fertility	fertility	fertile	sterile
chromosome	32	16	32
life span	2 - 5 year	"Not fixed"	6 - 8 year
food	Bee bread + Royal jelly	Bee Bread	Bee Bread
number	1	≃ 100	40,000 - 50,000
function	egg laying	fertilising	-

Functions of Workers :→

- Construction of beehive => constructor
- Cleaning of beehive
- Repairing of beehive
- Protection of beehive ⇒ Soldier
- Searching of food ⇒ Scout
- collection of food ⇒ Collector
- Nourishment ⇒ nurse, generally collector
- Honey production
- Wax production
- Evaporation of water = Fanners



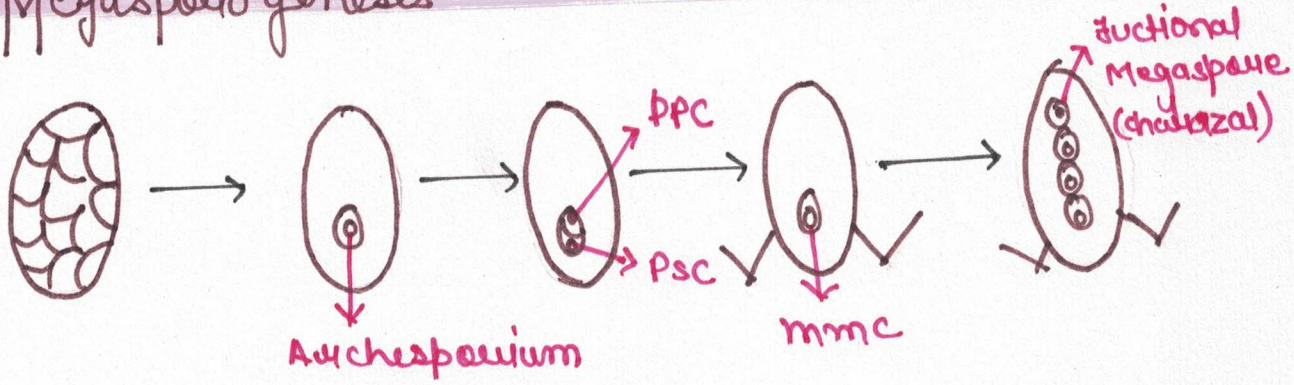
⇒ It is a jelly like secretion of maxillary glands of workers bees which helps in development of ovaries in larval stage.



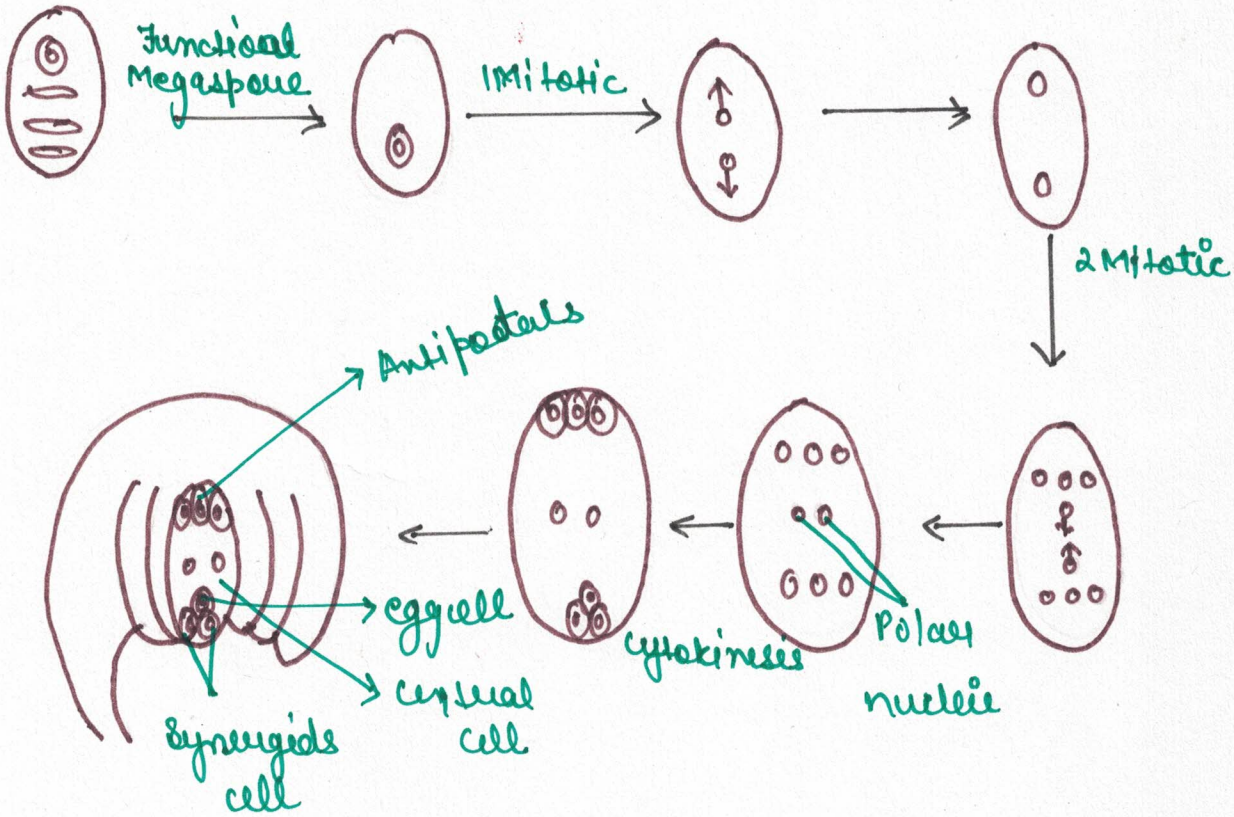
Dehiscence Of Anther

⇒ In a mature anther (at the time of dehiscence only two layers are present epidermis and endothecium) and tetrasporangiate condition is converted into bisporangiate.

Megasporogenesis

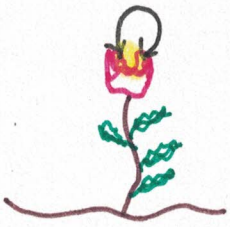


Megagametogenesis

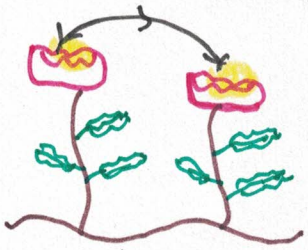


Pollination

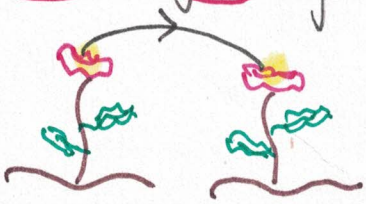
Autogamy :- It is possible in bisexual flower not in unisexual flowers monoecious and dioecious plant



Geitonogamy :- It is possible in bisexual flower unisexual flower and monoecious plants but not in dioecious plants.



Xenogamy :→ It is possible in all conditions



Polysyphonous

→ If generative cell of pollen grain is destroyed by the laser beam no fertilisation will take place but pollen tube will reach to the target.

→ If vegetative nucleus of cell is destroyed both fertilisation and growth will not take place.

Free nuclear division seen in endosperm.

→ At the tapetum
→ At Gamete
→ At endosperm (priority)

??? Coconut type of endosperm is

(1) Nuclear (2) Cellular (3) Nuclear + cellular

If nuclear + cellular is not given in option than answer will be nuclear.

DIPLOSPORY :→

Archesporium → megaspore mother cell

↓

Embryosac (2n)

↓

Embryo (2n) ← without fertilization ← Egg cell (2n)

2n → 2n ⇒ Diplaspory, Diploid parthenogenesis

n → n ⇒ Parthenogenesis