

Implementation Of A Breeding Programs

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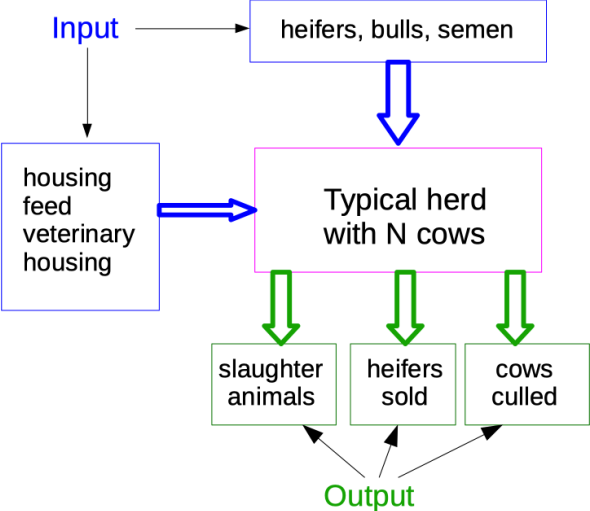
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Three Steps

The following steps are needed to implement a breeding program

1. description of production system
2. modelling profit of a typical herd
3. derive economic values

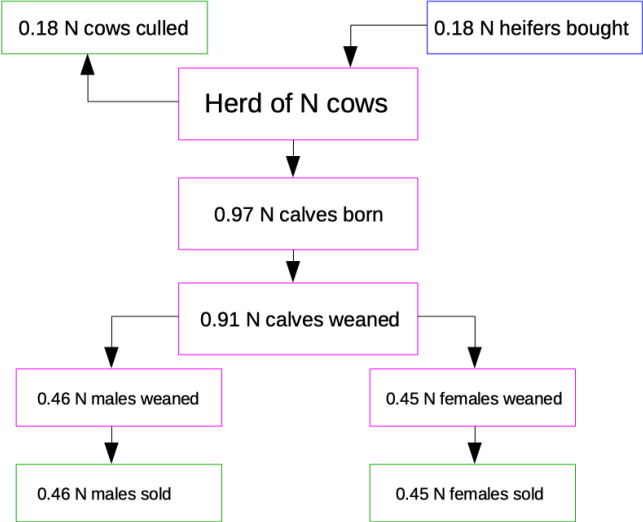
Production System



Why Production System

- ▶ Assume a hierarchical structure of the breeding program
- ▶ Alternatively: mixed farms in monolithic structure
- ▶ Breeding (and possibly multiplier) farms are selling their progeny to production farms
- ▶ Progeny must meet needs of production farms
- ▶ Breeders must select parents such that optimal progeny produced for production farms

Example Of Typical Production Farm



Traits Of Interest

- ▶ Profit (P) of production farm determined by revenues (R) and costs (C)

$$P = R - C$$

- ▶ Traits of economic interest influence P
- ▶ Restrict ourselves to output
 - ▶ age corrected carcass weight (CW)
 - ▶ carcass confirmation (CC)
 - ▶ carcass fat (CF)
- ▶ Above traits will be included in aggregate genotype (H)

$$H = a^T \cdot u$$

Economic Evaluation

→ postponed to later

Genetic Evaluation

- ▶ In most cases, two steps plus preparation
- ▶ Given: dataset on breeding animals containing traits of interest as response variables and predictor variables
- ▶ Preparation: do model selection to eliminate unimportant predictor variables
- ▶ Steps:
 1. variance components estimation
 2. prediction of breeding values