Implementation Of A Breeding Programs

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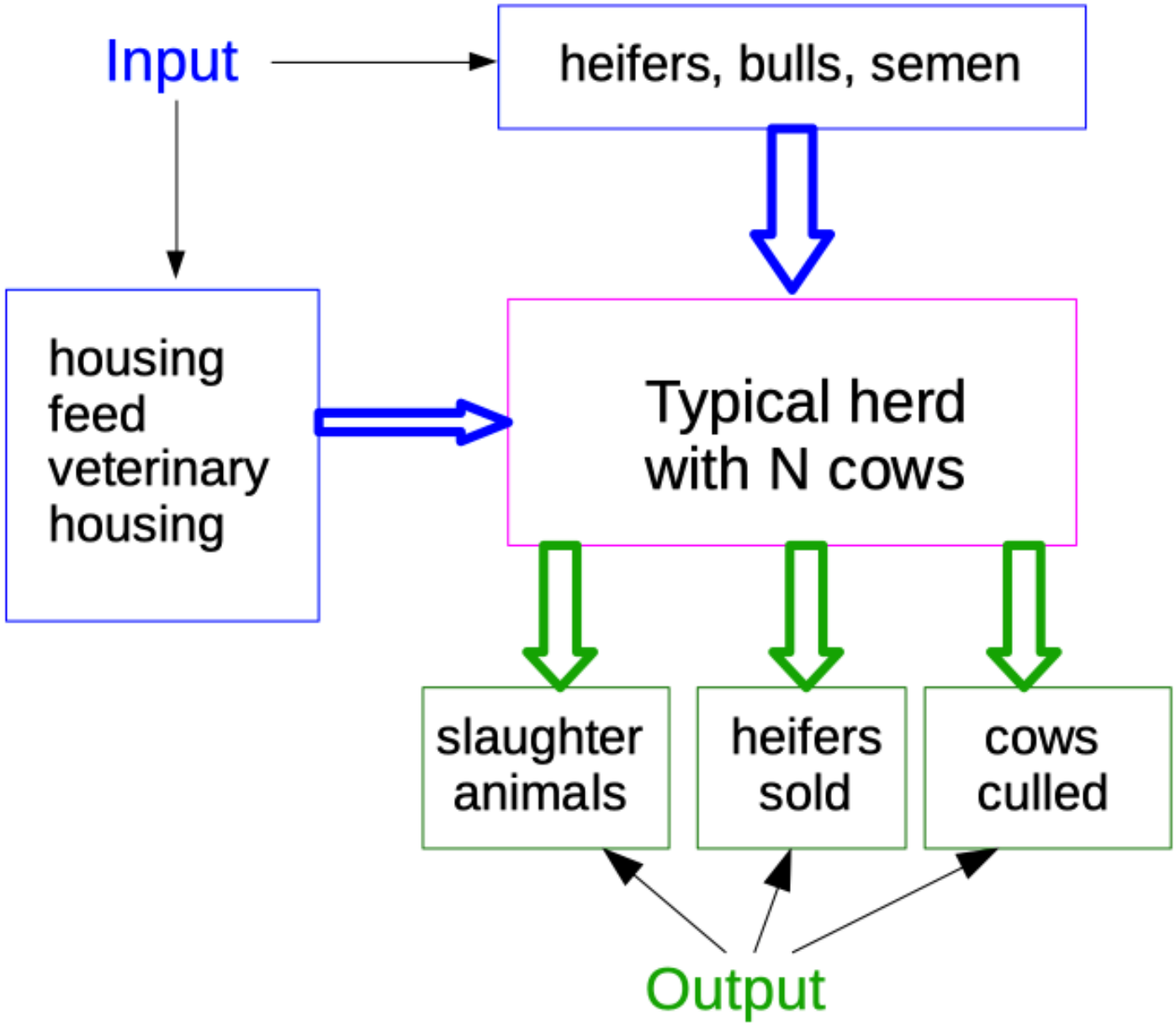
06.04.2020

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

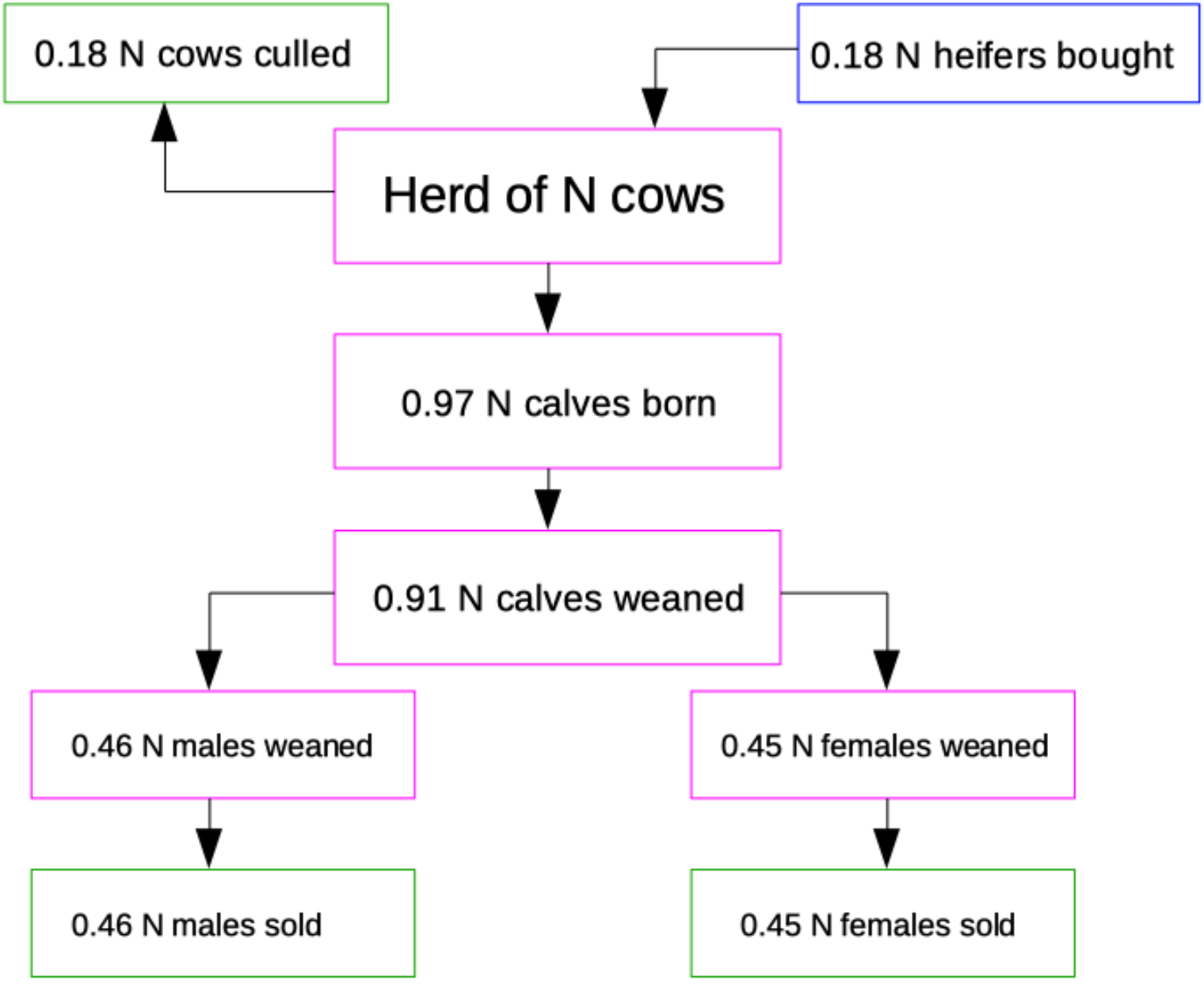
Production System



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 influnece 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

$\rightarrow$ 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