A note on practical reports

- **Introduction**
  - The problem
  - The issues
  - Aim (what do we want to compare)

- **Methods**
  - How to calculate things
  - What parameters were varied

- **Results**
  - Give results and explain them
  - Consider use of Tables

- **Discussion**  More general issues (e.g. costs)

- **Conclusion**
Practical 7

Multiple Trait Selection

• Explore the possible routes of genetic change (joint improvement of more traits)
  – prediction of response $h^2, \sigma_P$
  – correlated response $r_A$
  – information from more traits $h^2_B, r_A, r_P$

• Determine an (economically) optimal solution
  – Economic values (weight) for each objective trait
Predicting genetic change to multiple trait selection

- Single trait selection response
- Correlated response to selection

- Response to index selection
  - How can multiple trait response be manipulated by varying index weights
  - Can we go anywhere we want?
Direct and Correlated response to single trait selection

Response = $i.h_A \cdot \sigma_{gA}$

and

Correlated Response = $i.h_A \cdot r_g \cdot \sigma_{gB}$

single trait selection!
Selection for fleece weight and fibre diameter

• Which direction?
• How much response?
• What is optimal?

Note that examples used here are not exactly as in practical exercise
Criteria for selection

True Breeding Value

\[ \text{Index} = \text{EBV} = b_1 P_1 \]

\[ \text{Index} = \text{EBV} = 0.35 P_{FW} \quad R = 0.17 \text{ Kg} \]

\[ \text{Index} = \$\text{EBV} = 1.75 P_{FW} \quad R = 0.85 \$ \]
Criteria for selection

True Breeding Value

\[ \text{Index} = \text{EBV} = b_1 P_1 + b_2 P_2 \]

\[ \text{Index} = \$\text{EBV} = 1.72 P_{FW} + 0.06 P_{FD} \quad R = 0.18 \text{ Kg} \]

\[ R = 0.90 \$ \]
FW 5 $/Kg
FD 0 $/micr
True Breeding Value
= Breeding Objective

Criteria for selection

FW
\[ P_1 \]

FD
\[ P_2 \]

True Breeding Value

FW
\[ A_1 \]

FD
\[ A_2 \]

Index Weights

\[ \text{Index} = \text{EBV} = b_1 P_1 + b_2 P_2 \]

Economic Weights

\[ R_{\text{FW}} = 0.09 \text{ Kg} \]

\[ R_{\text{FD}} = -0.43 \text{ micr} \]

\[ R = 0.88 \text{ $} \]
$FW = 5 \$/Kg$
$FD = -1 \$/mier$
Criteria for selection

True Breeding Value

FW

\[ P_1 \]

\[ b_1 \]

\[ A_1 \]

\[ b_2 \]

\[ A_2 \]

FD

\[ P_2 \]

Index = EBV = \( b_1 P_1 + b_2 P_2 \)

Index = $EBV = 1.66P_{FW} - 0.19P_{FD} \quad \text{R}_{FW} = 0.15 \text{ Kg}

\[ R_{FD} = -.23 \text{ micr} \]
FW  5 $/Kg
FD  -0.5 $/micr
FW 5 $/Kg
FD -2 $/mier
Fill in this table

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<th>$e_{w_{FD}}$</th>
<th>$b_{FW}$</th>
<th>$b_{FD}$</th>
<th>$R_{FW}$ (Kg)</th>
<th>$R_{FD}$ (micron)</th>
<th>$R_S$</th>
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