# INFLUENCE OF MOISTURE CONTENT OF FEEDING SUBSTRATE ON GROWTH AND COMPOSITION OF *HERMETIA ILLUCENS*

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# INSECTS AS FEED

- Search for alternative protein source
- Insects: proteins, fats and chitin
- *Hermetia illucens* (Black soldier fly):
  - Short lifecycle
  - High fecundity
  - Small area
  - Organic side streams
  - …

low value biowaste

high value feed

# *HERMETIA ILLUCENS* AS WASTE CONVERTER

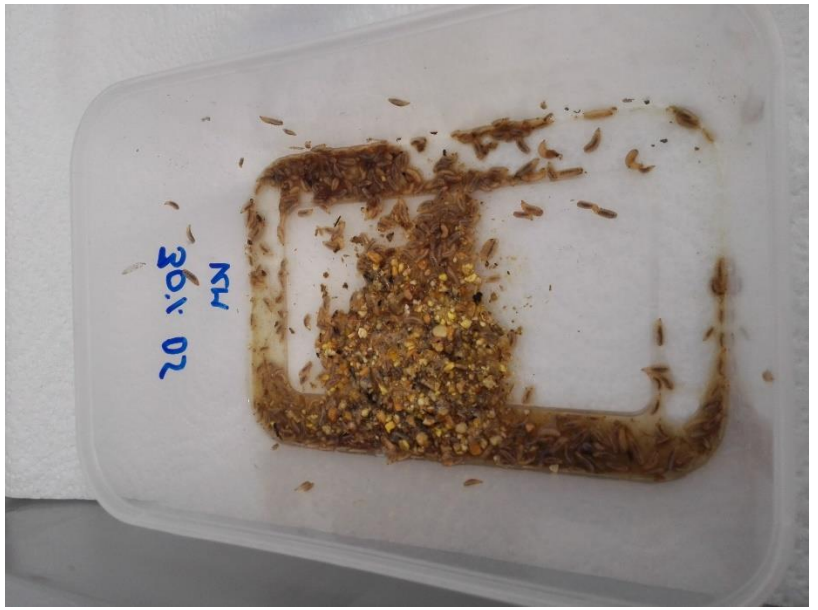
- Which biowaste stream can be used as BSFL feed?
  - Yield, feed conversion, waste reduction….
    - ➢ Influenced by growth conditions, nutritional needs…
  - Feasibility
    - eg. availability of waste stream, legal aspects…
- Eg. FOOD WASTE (pre and/or post consumer)

*'swill' composed of unpacked pre and post consumer food waste*

# FOOD WASTE AS FEEDING SUBSTRATE FOR *HERMETIA ILLUCENS*

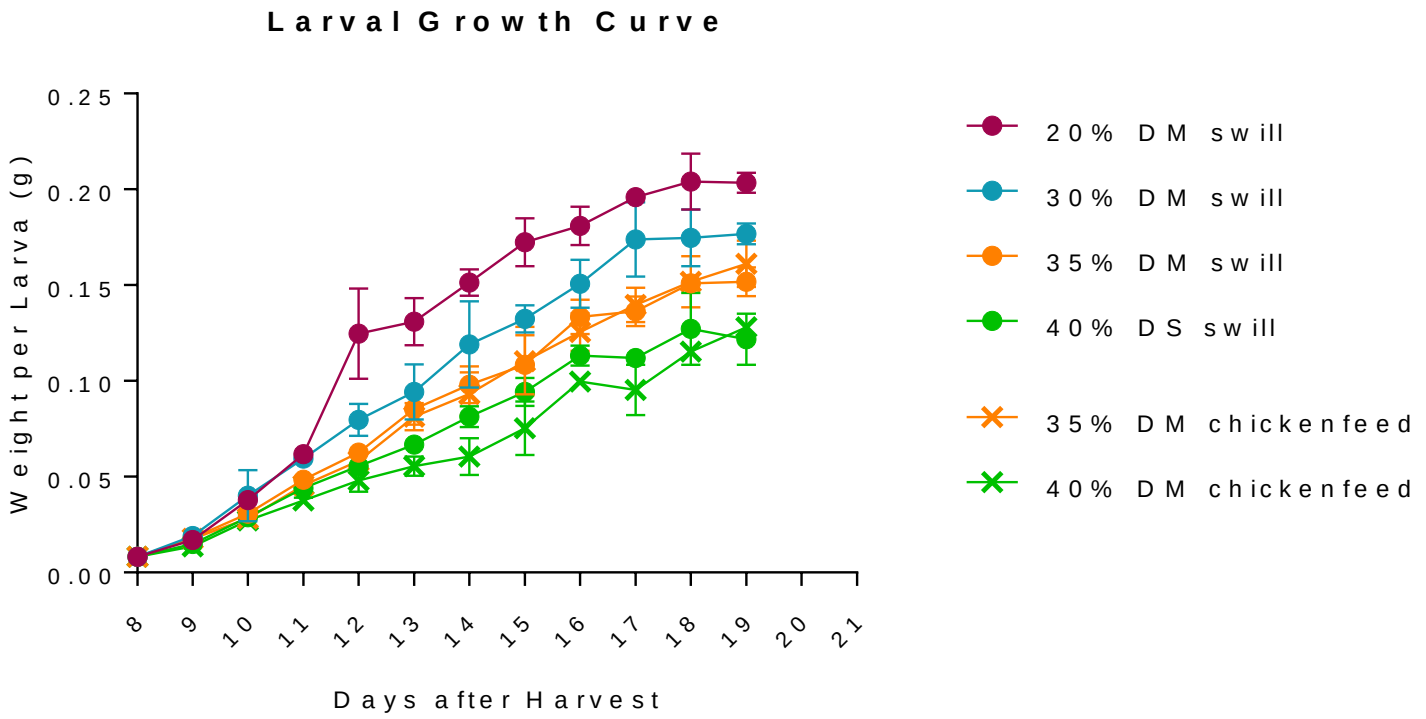
- Research question:
  - What is the influence of the moisture content of the feeding substrate?

- Experimental design:
  - 100 mg feed/larvae/day (fresh weight):
    - 20% dry matter swill
    - 30% dry matter swill
    - 35% dry matter swill
    - 40% dry matter swill
    - 35% dry matter chicken feed
    - 40% dry matter chicken feed
  - 2,96 larven per $cm^2$
  - 26°C & 60% RH



*'moist' feed => larvae crawl out of substrate*

# INFLUENCE OF MOISTURE CONTENT ON GROWTH



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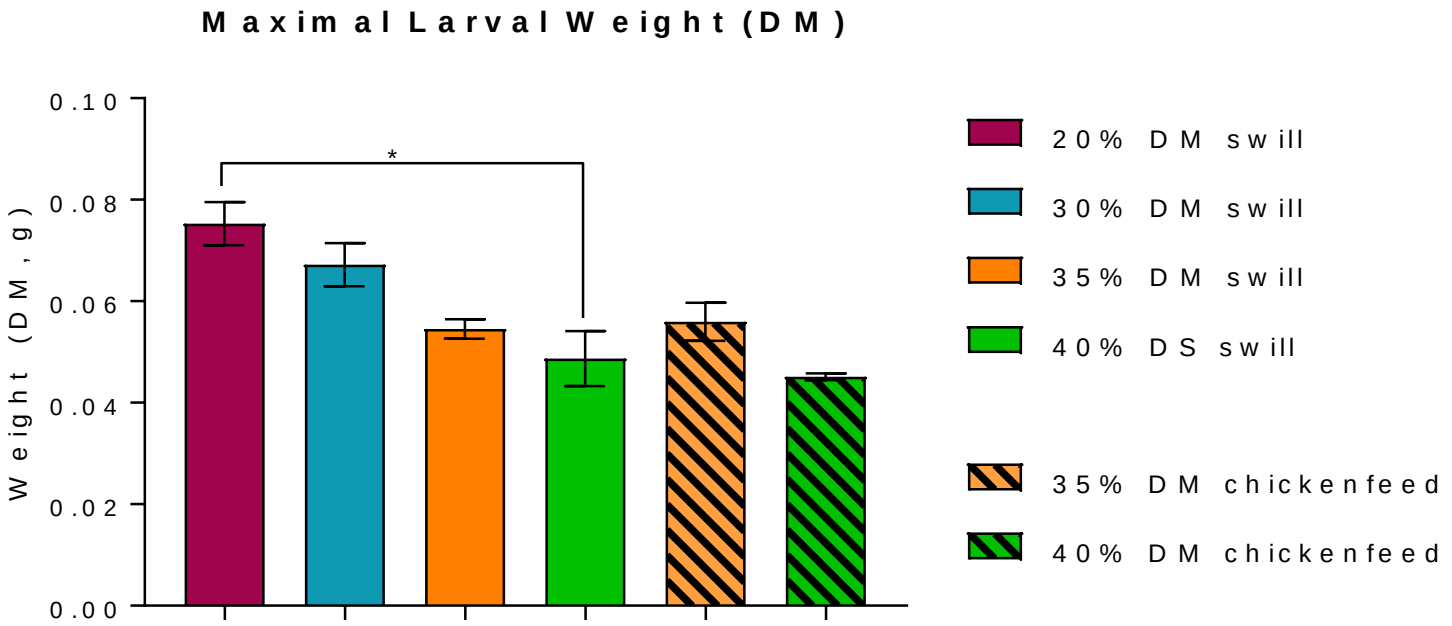

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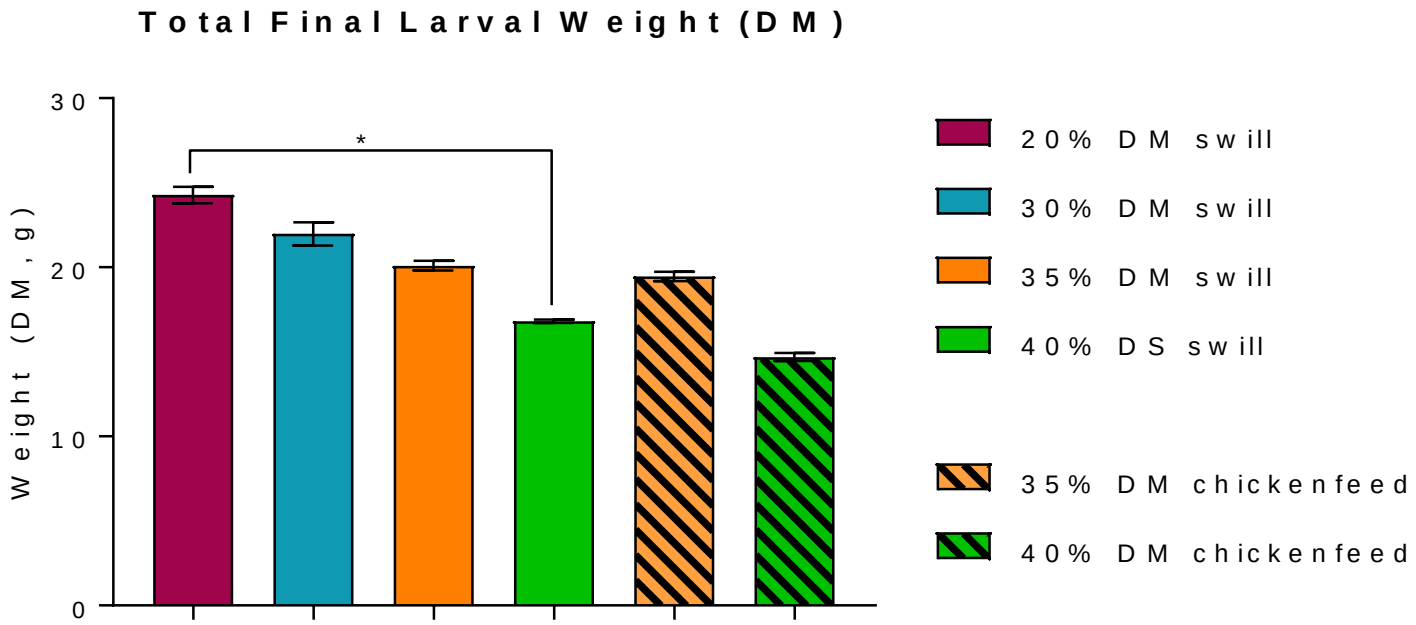
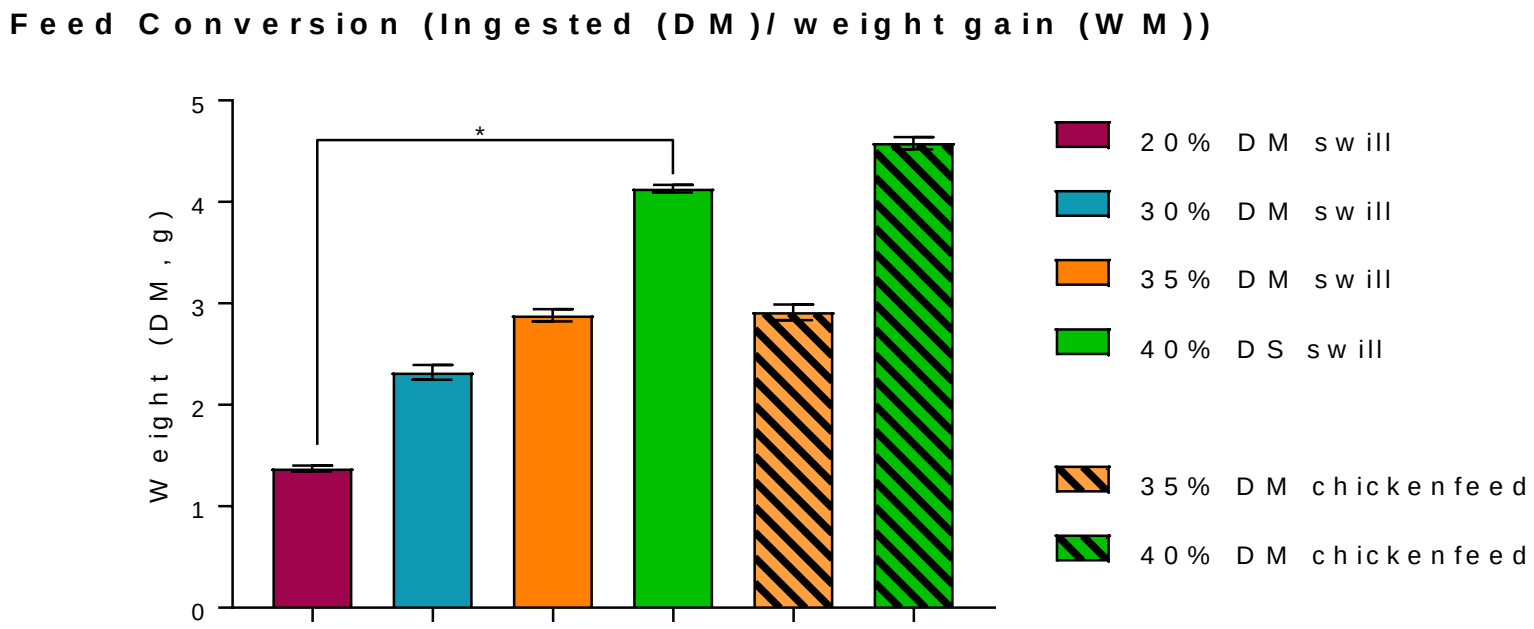
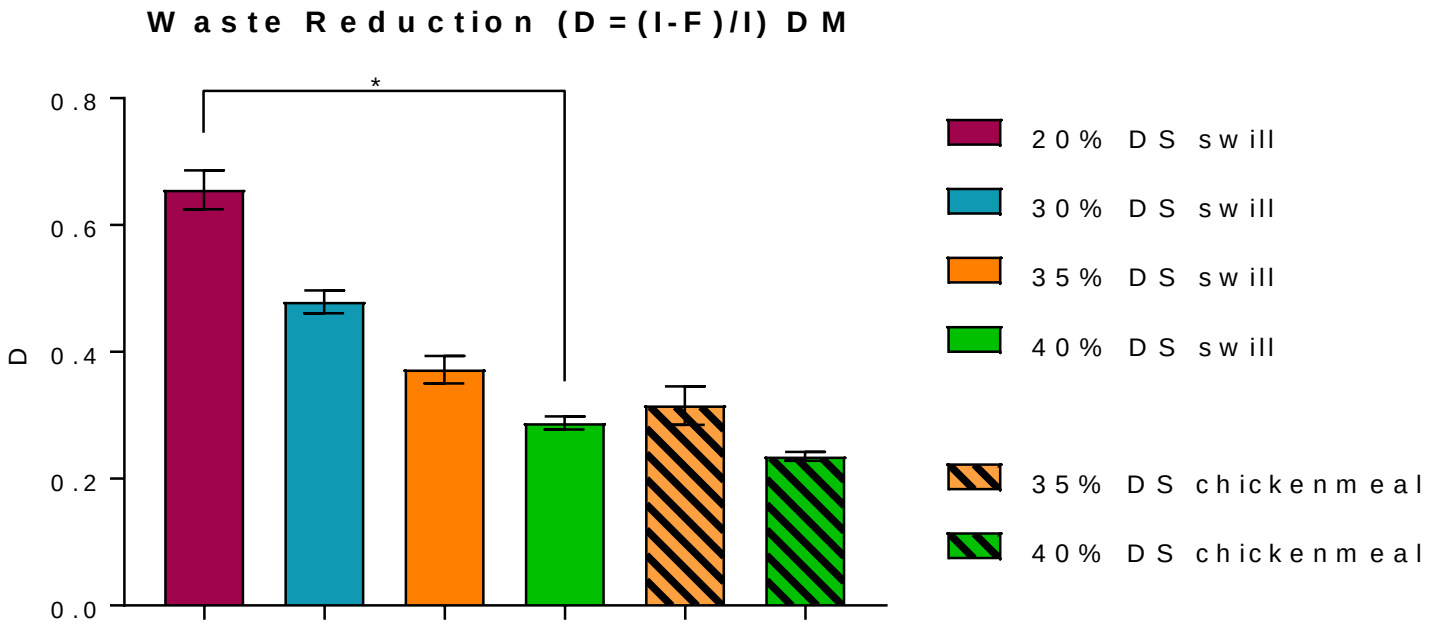


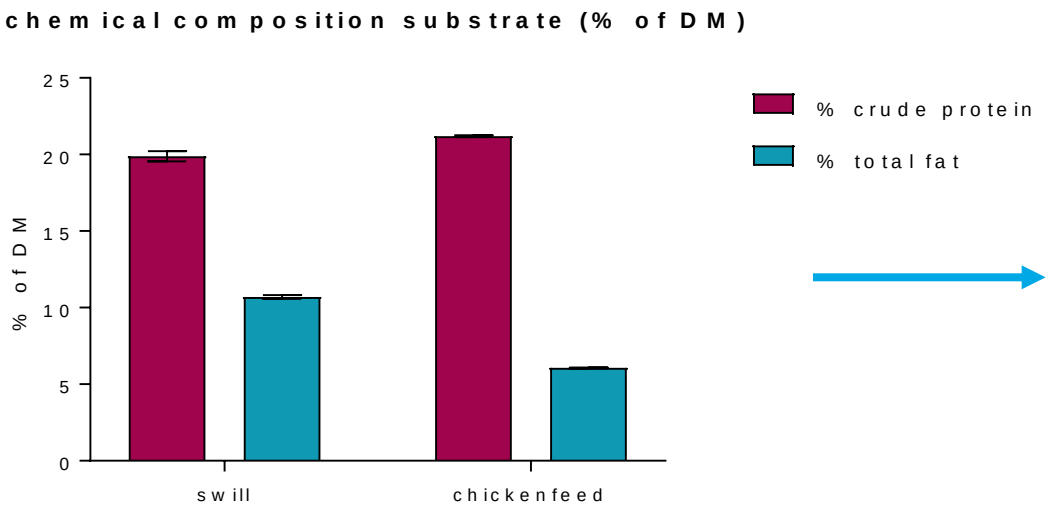
# INFLUENCE OF MOISTURE CONTENT ON FEED CONVERSION

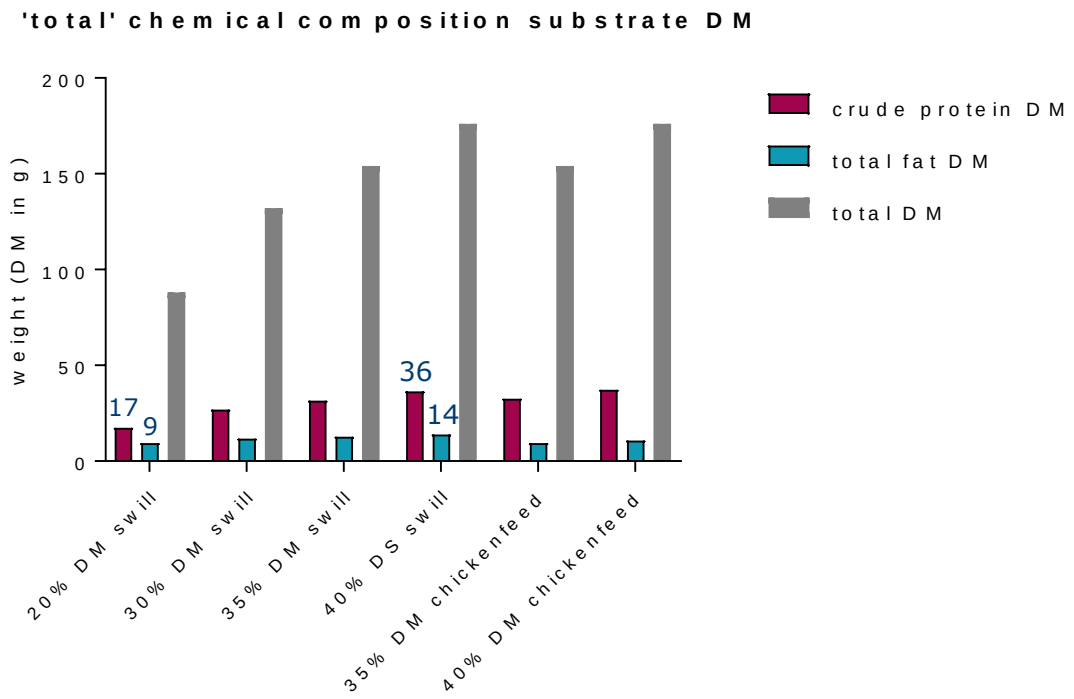


# INFLUENCE OF MOISTURE CONTENT ON WASTE REDUCTION

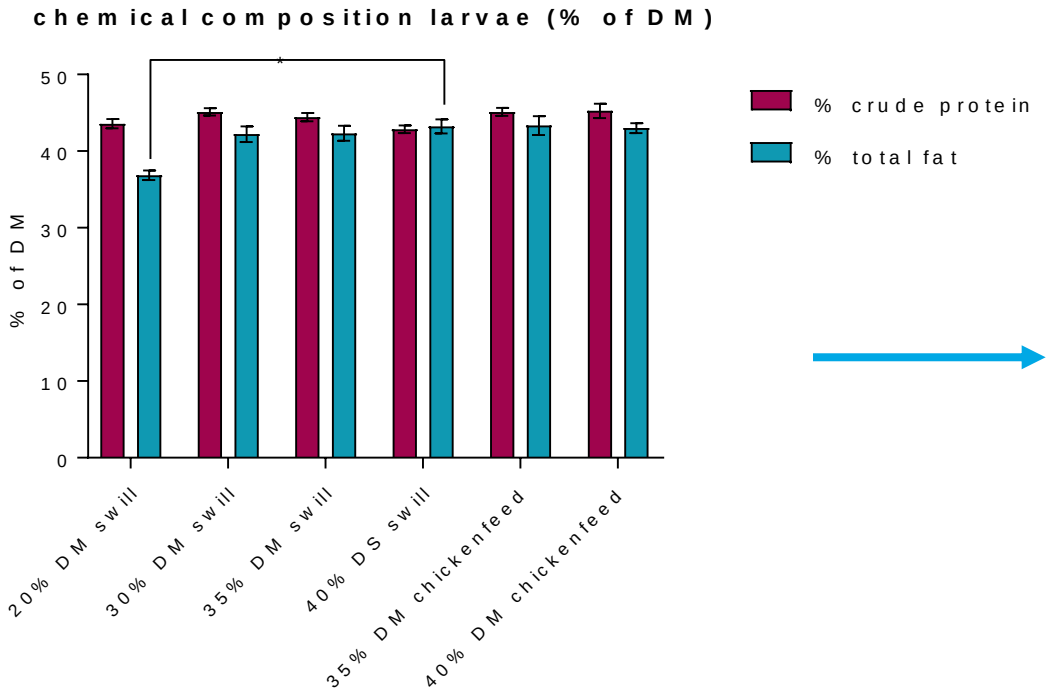


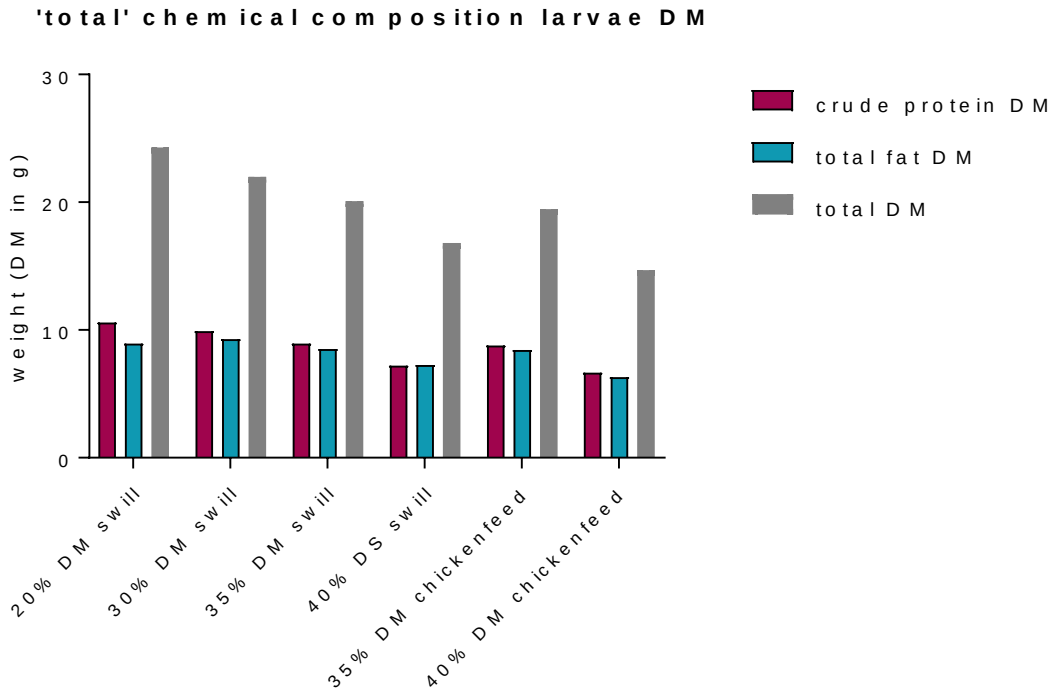
# CHEMICAL COMPOSITION SUBSTRATE



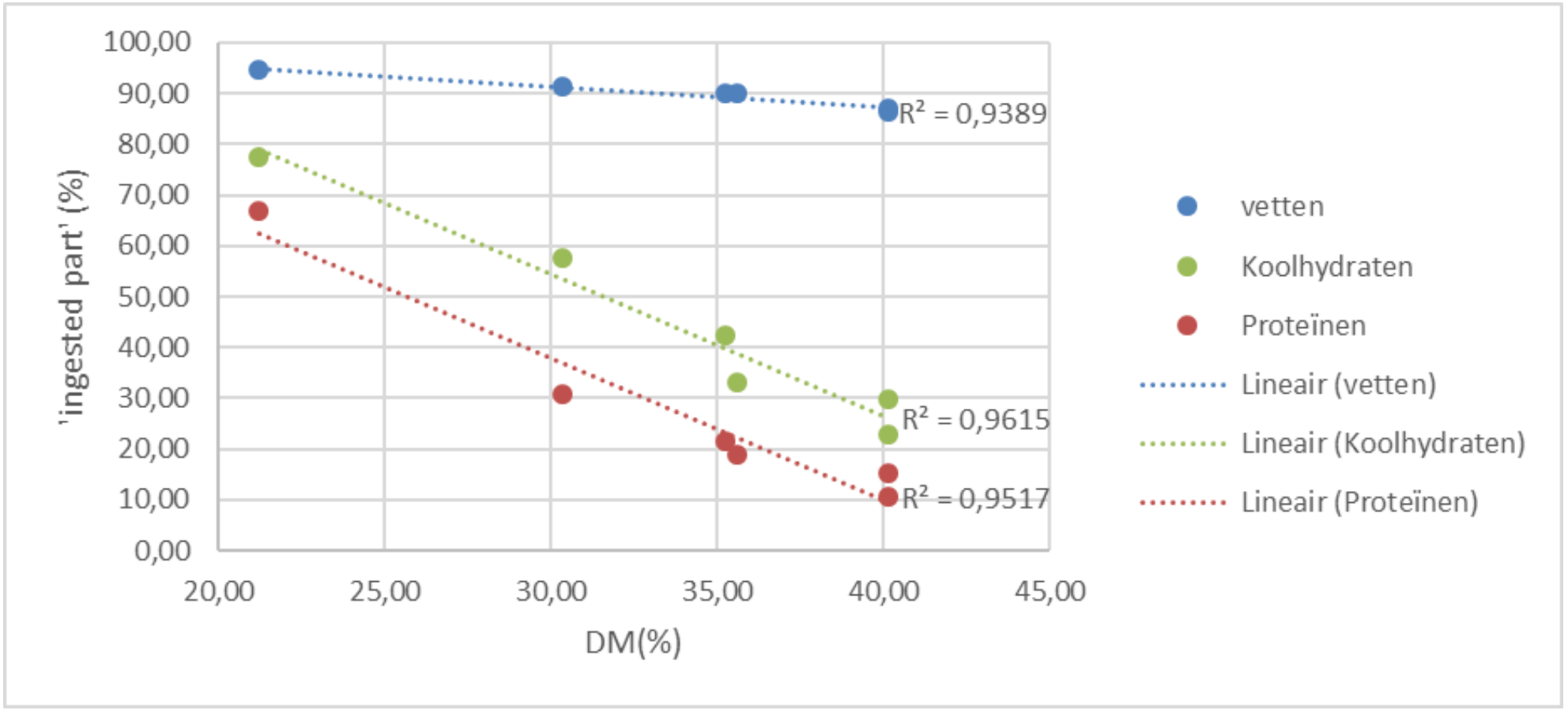



# INFLUENCE OF MOISTURE CONTENT ON CHEMICAL COMPOSITION LARVAE



# INFLUENCE OF MOISTURE CONTENT ON CHEMICAL COMPOSITION



# CONCLUSIONS AND FUTURE PROSPECTS

- Higher moisture level (20% DM swill or chickenfeed) results in better
  - Growth, yield
  - Feed conversion
  - Waste reduction
- Moisture level influences uptake of proteins and fat from substrate (less for fat)
- Next: same amount of dry matter but changing moisture content (changing fresh weight) of substrate

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