

Feeding behaviour in dairy goats, a repeatable trait which can be measured automatically

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Modélisation Systémique Appliquée aux Ruminants
(Systemic modelling applied to ruminants)

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Introduction

Feeding behaviour

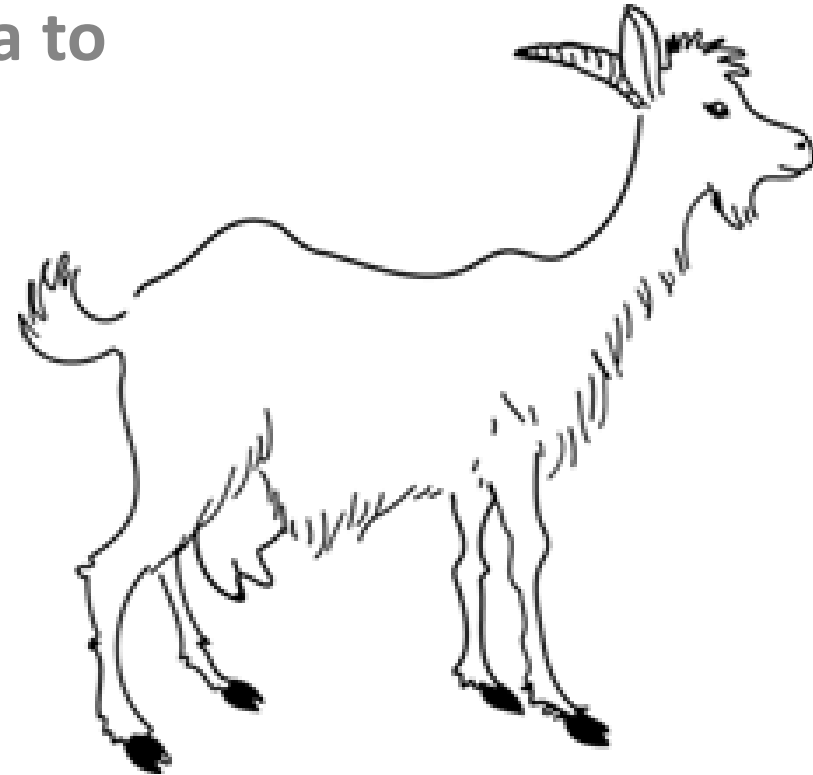
influences dry matter intake

is highly variable between animals

is a key-factor to explain the inter-individual variation in the evolution of rumen pH (occurrence of acidosis)

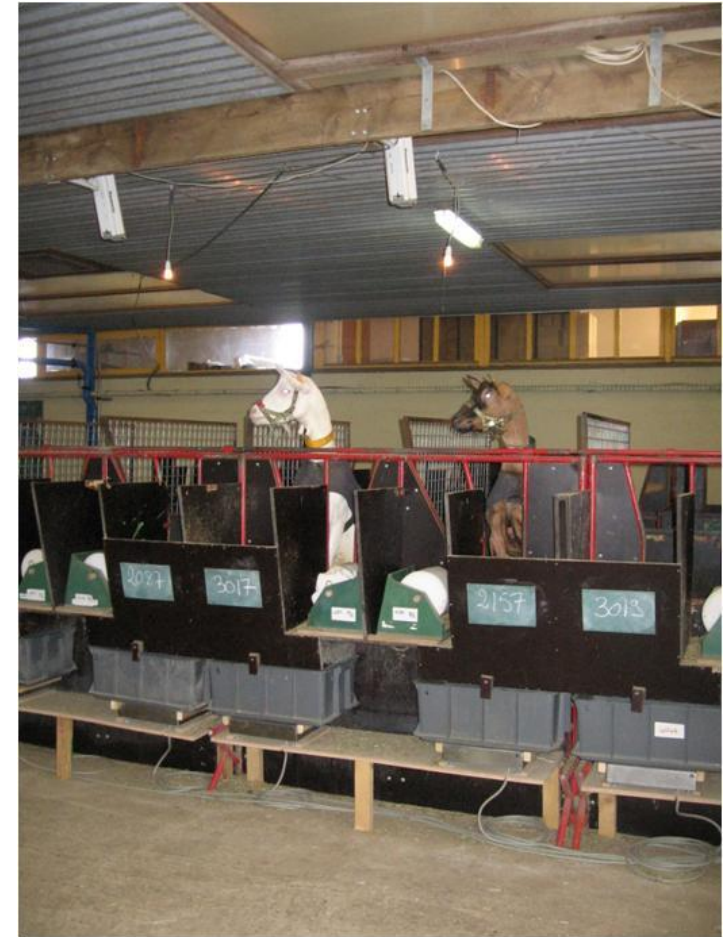
Aim of the work:

look for **repeatable** and **pertinent** criteria to evaluate this trait in dairy goats



Experimental design

- 35 dairy goats
- 1 TMR diet *ad libitum*:
 - 20 % Concentrate
 - 20 % Meadow hay
 - 30 % Dehydrated lucerne
 - 30 % Pressed sugar beet pulp silage
- Automatic measurement of feed intake (2 min.)
- 3 periods (3 or 4 days/period)
 - 1st lactation
 - 2nd gestation & end of 1st lactation
 - 2nd lactation

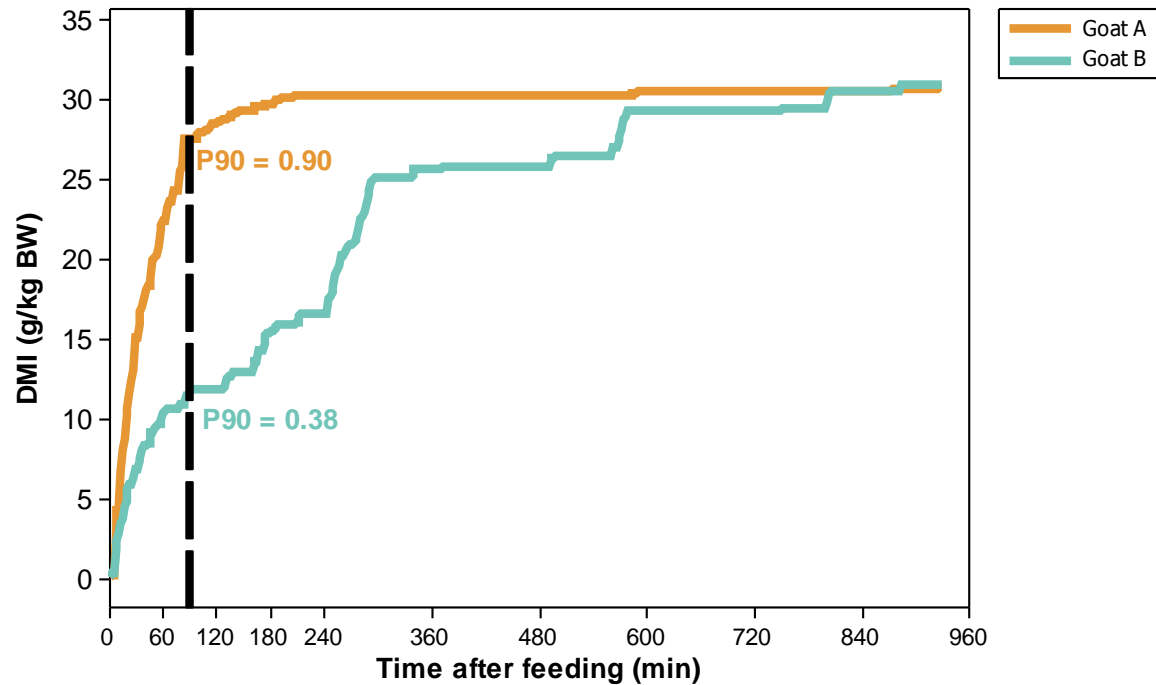


2 Phenotypes measured

Q90

P90: Proportion of dry matter eaten 90 min after the afternoon feed allowance which corresponded to two thirds of the daily feed allowance (**P90**).

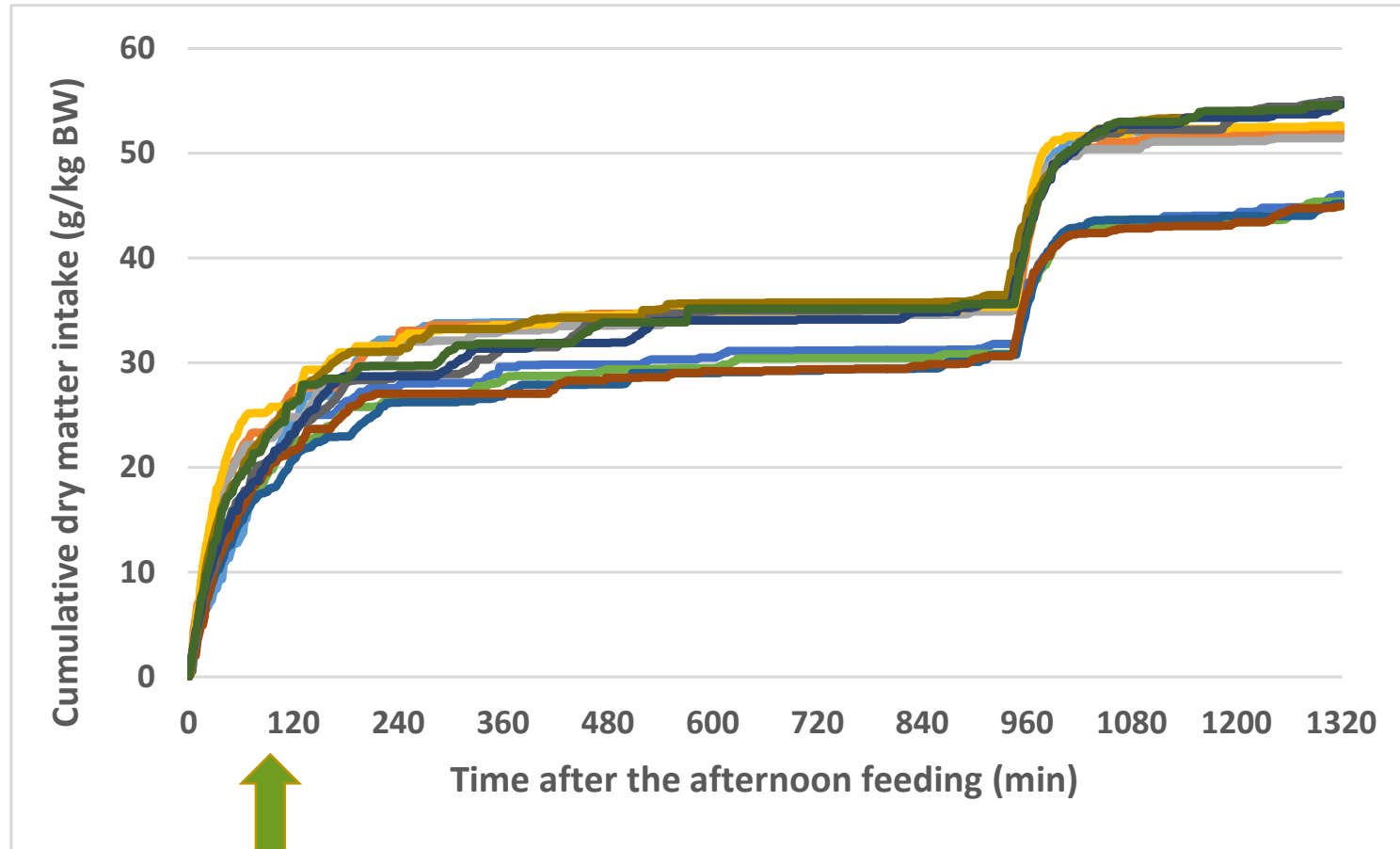
Dry matter intake evolution (pm Feed allowance)



(Giger-Reverdin, 2009)



Evolution of intake after afternoon feeding



P3: 2nd lactation

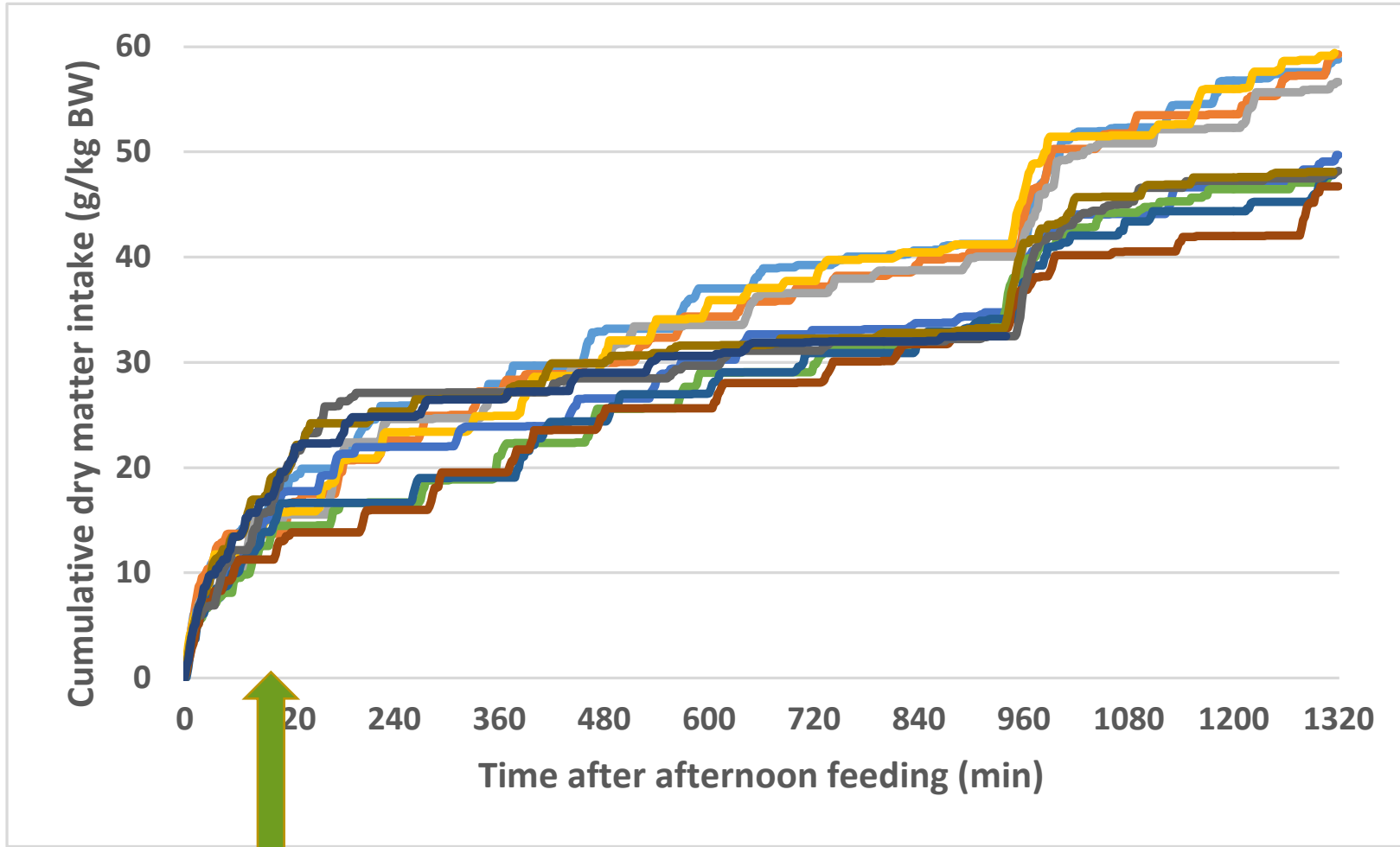
P1: 1st lactation

P2: end 1st lactation

4 days/period



Evolution of intake after afternoon feeding



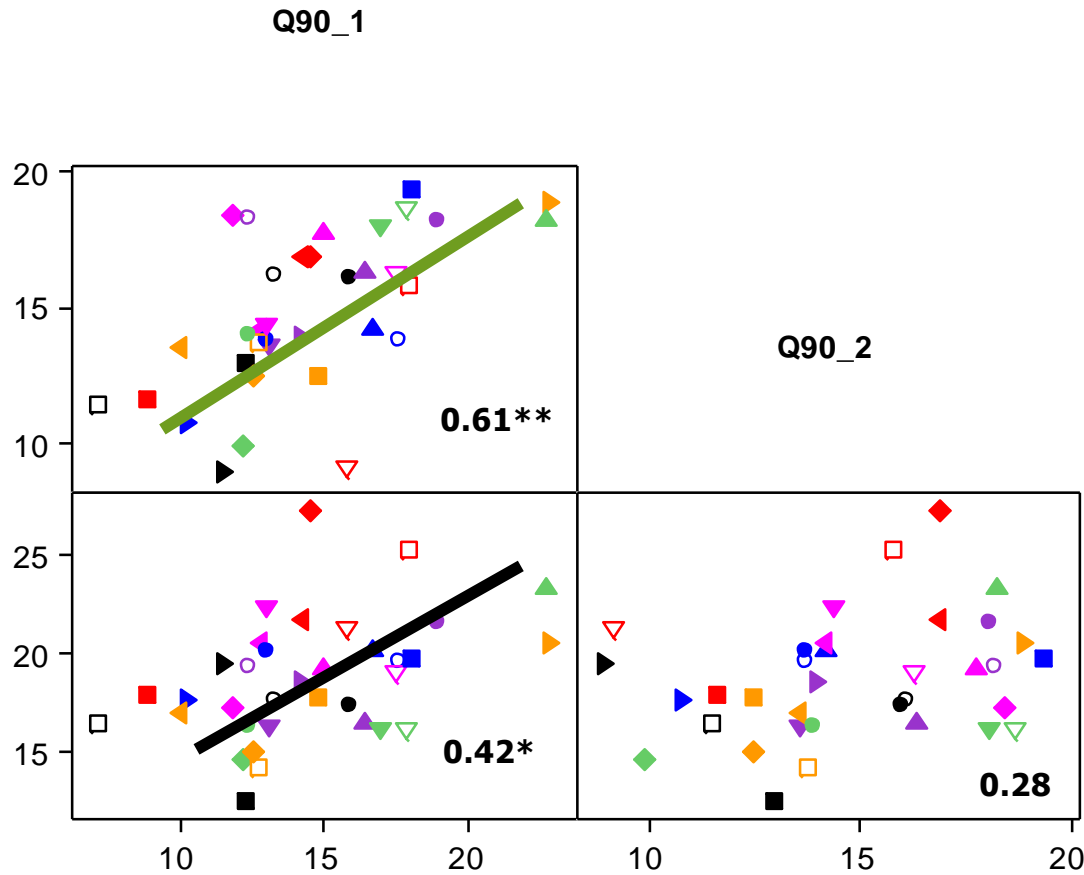
P1: 1st lactation

P3: 2nd lactation

P2: end 1st lactation

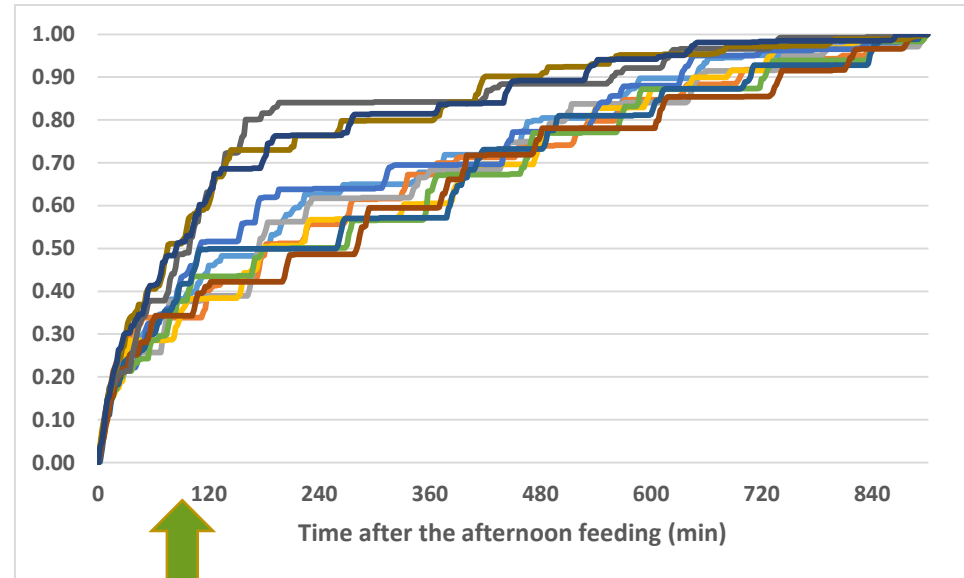
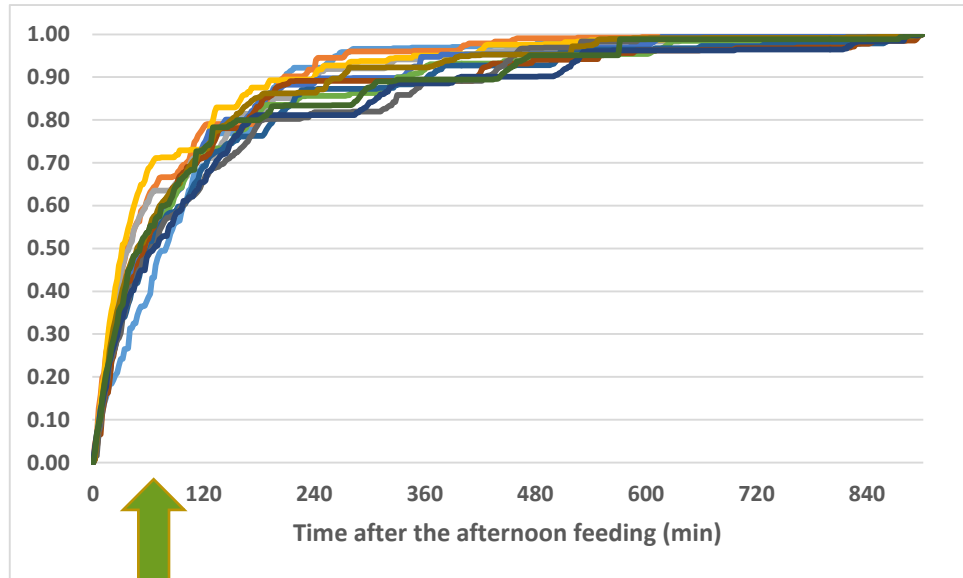
4 days/period

Between-periods correlation for Q90

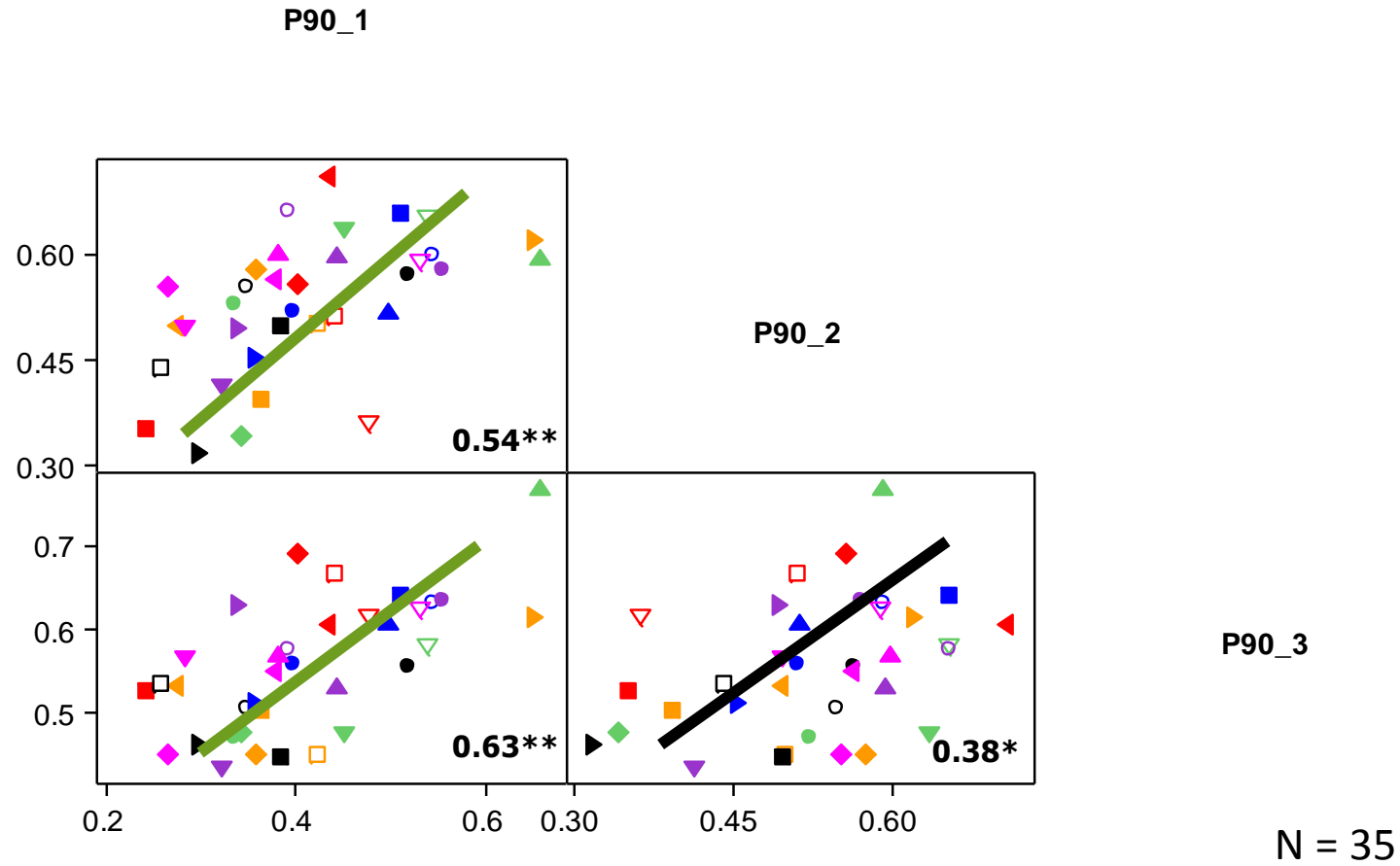


- Goat
- 11009
 - 11014
 - ◆ 11015
 - ▲ 11016
 - ▶ 11024
 - ▼ 11025
 - ▼ 11035
 - 11036
 - 11040
 - ▽ 11044
 - 11048
 - 11055
 - ◆ 11056
 - ▲ 11062
 - ▲ 11064
 - ▲ 11066
 - ▼ 11069
 - 11070
 - 11071
 - ▽ 11072
 - 11073
 - 11074
 - ◆ 11079
 - ▲ 11084
 - ▲ 11090
 - ▶ 11092
 - ▼ 11093
 - 11096
 - 11097
 - ▽ 11100
 - 11107
 - 11109
 - ◆ 11110
 - ▲ 11111
 - ▼ 11112

Proportions of feed eaten after afternoon feeding



Between periods correlation for P90



- Goat
- 11009
 - 11014
 - ◆ 11015
 - ▲ 11016
 - ▶ 11024
 - ▼ 11025
 - ▽ 11035
 - 11036
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 - 11109
 - ◆ 11110
 - ▲ 11111
 - ▼ 11112

N = 35

Discussion and practical implications

- High intra-period individual repeatability
- High between-period repeatability
 - characterisation of the **feeding behaviour** during the **1st lactation**
 - adjustment of feeding in the following lactations to decrease the **occurrence of acidosis**
- Possibility to **phenotype goats on intake rate** in precision livestock farming





Thank you for your attention