

MODELLING EFFECTS OF SELECTED CANDIDATE GENES ON MILK PRODUCTION TRAITS AS VARIABLE DURING A LACTATION

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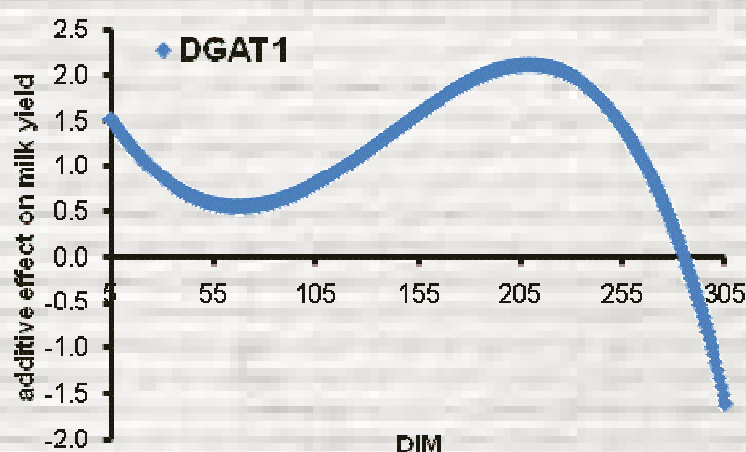
● **MATERIAL: TEST DAY YIELDS FROM 192 JERSEY COWS**

● **METHODS: MODELLING SNP EFFECTS USING ORTHOGONAL POLYNOMIALS**

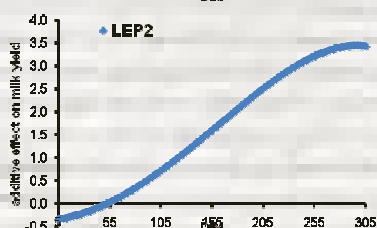
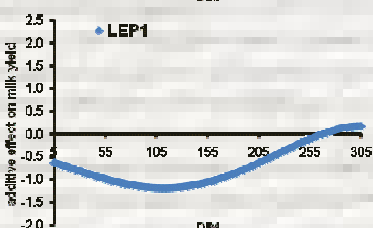
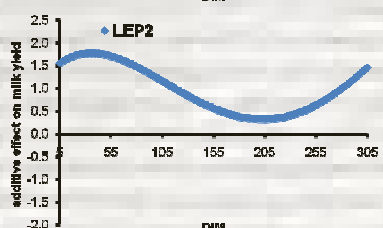
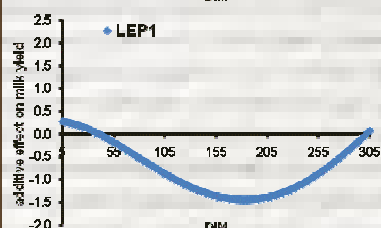
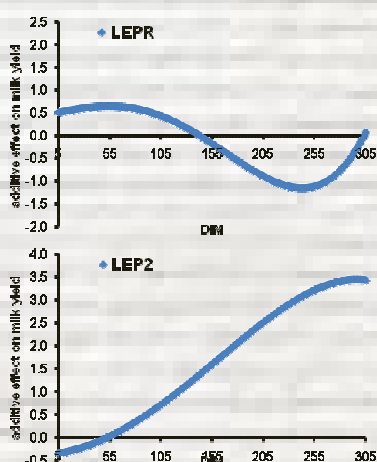
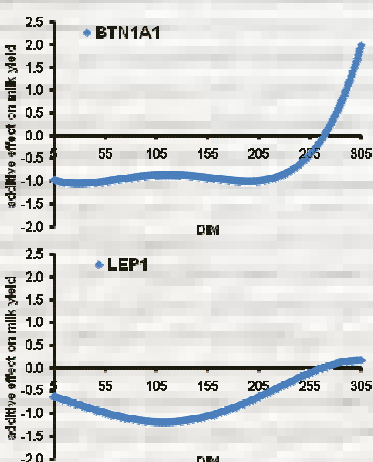
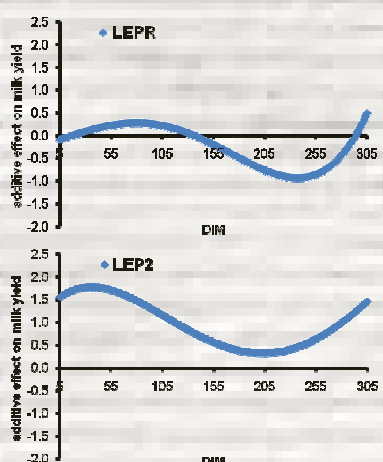
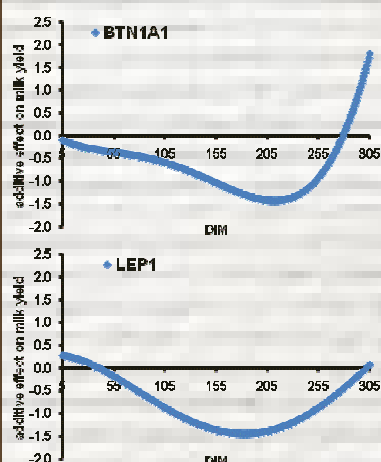
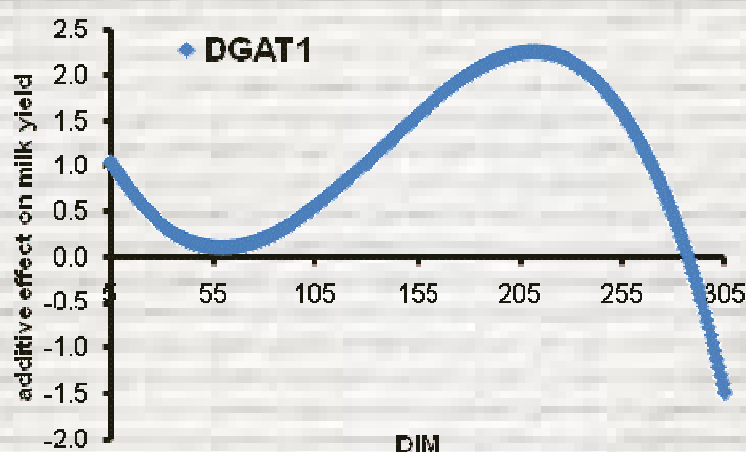
● **CONCLUSIONS: EFFECTS OF SNP ARE **NOT CONSTANT** DURING LACTATION**

● RESULTS

Random regression test day model



Fixed regression test day model



$$y = \mu + td + ca + \sum_{i=0}^3 \varphi_i^{cs} cs_i + \sum_{i=0}^4 \varphi_i^{snp} snp_i + \sum_{i=0}^2 \varphi_i^{\alpha} \alpha_i + \sum_{i=0}^2 \varphi_i^p p_i + e$$

$$y = \mu + td + ca + \sum_{i=0}^4 \varphi_i^{snp} snp_i + e$$

y - test day milk yield at 1st lactation; **μ** - general mean; **td** - test day date; **ca** - calving age class; **φ_i** - i-th coefficient of the orthogonal polynomial on DIM; **cs** - calving season class; **snp** - snp additive effect (within: BTN1A1, DGAT1, LEP, LEPR); **α** - additive polygenic effect $\alpha \sim N(0, I\sigma_{\alpha}^2 \otimes A)$; **p** - permanent environmental effect $p \sim N(0, I\sigma_p^2 \otimes I)$;