

B.T. YOUNG SCIENTIST ONE PAGE PROPOSAL 2009

STUDENTS

CATEGORY: BIOLOGICAL AND ECOLOGICAL SCIENCES

SECTION: JUNIOR

SCHOOL:

PROJECT TITLE:

OVERVIEW:

Our project aims to examine Somatic Cell Count (SCC), how it is analysed. We also aim to develop our own method to test for SCC.

PROJECT DEVELOPMENT/BACKGROUND:

We both come from farming backgrounds. Our dads are dairy farmers. We are very interested in agriculture, particularly milk production. We recognise the importance of the agricultural sector to the Irish economy. Irish farmers during the past decade have had to cope with massive increases in E.U. directives and restrictions. The paper trail associated with agriculture is growing all the time. Specific requirements related to SCC have been introduced by the EU. Somatic cells are the epithelial cells shed by the secretory tissue of the udder and leucocytes from the bloodstream (Ref 1).

Our dads monitor SCC; they check their milk recording figures and try to keep informed about the quality of the milk produced. Dairies penalise the price of milk paid to the farmers based on the SCC. Additionally, we have experienced that stray electric currents have impacted cows during milking and increased SCC.

APPROACH:

In our study we will examine SCC, the factors affecting it and consider the origins of the SCC test. We want to know how much SCC affects the quality of the milk, how pasteurisation affects SCC and what impact, if any, SCC has on the human population. This is especially important as high SCC milk is still used for human consumption. We will investigate how common our experience with electric currents is and propose ways to reduce the phenomenon (e.g. earthing of equipment; use of conductive mats under cows during milking etc). While most of the SCC testing is done commercially we will investigate developing our own test. A practise used by farmers is to use a surfactant (such as washing up liquid) and combine it with a sample of Milk. Milk with a high SCC curdles quickly when exposed to the surfactant. Using multiple samples of milk at different SCC levels we will repeat and hopefully develop this "home-grown- test such that it can reliably predict SCC levels.

Reference 1: Jim Flynn Laboratory Technician, Teagasc.