

Student 4: Background to the Environmental Issue

There is no doubt that dairying has a detrimental effect on the quality of the environment within the last couple of decades. A characteristic to prove this is that dairy farming is a high intensive farming system. What does this mean? This means that dairying is a large consumer of natural resources and is a generator of large amounts of pollutants and waste.

Another characteristic is that it is a pasture based system and what this means is that dairy farmers have to work within the constraints and variability of landscape and climate. The third characteristic is the constraints. For example, Southland soils are susceptible to pugging and water logging. Draining systems are put into place to reduce water logging which can result in contaminants being rapidly transported from paddock to stream. The waterways criss-cross the agricultural landscape which are highly sensitive to contaminants. The rain and low evapotranspiration that makes drought aids the runoff and leaching of contaminants into the surface and ground waters, and makes some farm practices such as effluent disposal difficult.

Another environmental issue is leaching which means the loss of water soluble plant nutrients from the soil, due to rain and irrigation. Leaching is an environmental concern when it contributes to ground water contamination. The water from the rain, flooding and other sources seep into the soil and it can dissolve chemicals and carry them into the underground water supply.

Effects on the waterways.

Dairy effluent and nitrogen from fertiliser both have an effect on our New Zealand waterways. Dairy effluent can have a significant adverse effect from the discharge of ammonia from dairy effluent. It causes toxicity to the small inland waterways. Nitrogen from fertiliser can enter waterways relatively quickly if it is carried across the land surface by rainfall runoff (1). The discharge of nitrogen has an eutrophication effect through the growth of nuisance plants and algae (3) as explained in previous question.

Sedimentation also has an effect on waterways. Sedimentation in basic words means soil erosion which is caused by slips, pugging and green feed crops. Sedimentation from dairy farming can harm aquatic ecosystems by reducing light penetration and visual clarity. The effects from reduced light and visual clarity are that there is reduced vision for aquatic animals like fish and semi-aquatic birds and reduced plants photosynthesis and growth. Other effects of sedimentation include the degradation of substrates for bottom dwelling organisms, clogging of fish spawning gravels, smothering of estuarine animals and the infilling of lakes and reservoirs.

Another contaminant that has a negative effect to New Zealand waterways is faecal contamination. Faecal contamination has effects on humans and animals because they have the chance of catching a waterborne illness. There are a number of sources of how the waterways get polluted. These sources consists of direct deposition of faecal matter in waterways by livestock and the discharge of effluent to land soil and soil water which could flow to surface waters (2). Nitrogen, dairy effluent, faecal contamination which contains effluent and sedimentation are all negative factors to our waterways.