

## CHAPTER I

### INTRODUCTION AND AIMS

Dairy industry in Thailand has been developed for over 40 years. The problems are the low milk production and short lactating period of crossbred dairy cattle. Many factors can effect production for example nutrition, disease, genetic, high ambient temperature and management. Heat stress has a significant impact on dairy cattle in Thailand. The environmental factors which contribute to heat stress include high temperature, high humidity and radiant energy. During heat stress the decrease in metabolic heat production will be apparent by increase in the respiratory rate (panting), reduced activity reduced feed intake and adversely reduction of productivity. Dairy cattle produce large amounts of heat from both ruminal fermentation and metabolic processes. In order to maintain body temperature within thermal range, cows must exchange this heat with the environment. The environmental modification is necessary to maintain productivity in the lactating dairy cow.

There are three interventions management which can be considered to reduce the heat stress. These are genetic changes, nutritional strategies and environmental modification. The environment modification to prevent heat stress has been utilized by an increase in heat dissipation from the body of the cattle. The environmental modifications that alleviate severe heat stress in dairy production including shade, water spray and evaporative cooling system have been noted. Evaporative cooling system (EVAP) is the method to reduce air temperature by using a fan to pull outside air through media (pad) that are kept thoroughly by water that sprayed. When the air is blew through a wet medium as pen fiber or treated cellulose, fiberglass or plastic water evaporates it absorbs heat. EVAP has been used as successful method to cool swine and poultry in hot climates.

Therefore, the objective of the present study was to evaluate the effect of environmental modifications by the evaporative cooling system compare to the conventional system on feed utilization, productive performance and some physiological parameters in early lactation of crossbred Friesian heifers.